



STIC Search Report

EIC 1700

STIC Database Tracking Number: 142721

TO: Dawn Garrett
Location: REM 10C79
Art Unit : 1774
March 11, 2005

Case Serial Number: 10/729238

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 3/3/2005
 Art Unit: 1774 Phone Number ~~30~~ 2-1523 Serial Number: 10/129,238
 Mail Box and Bldg/Room Location: Remsen 10C79 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organic Element for Electroluminescent Devices

Inventors (please provide full names): SHOUGAN HUC, JOSEPH DEATON, ALAN SOWINSKI

Earliest Priority Filing Date: 12/5/2003

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search compounds according to
 the organometallic complex described in
 claim 1 (including specific formulas 1(a), 1(b), and 1(c))

Thank you

STAFF USE ONLY

Searcher: WJL

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: 3/10/05

Date Completed: 3/11/05

Searcher Prep & Review Time: 120

Clerical Prep Time: 30

Online Time: 240

Type of Search

NA Sequence (#) _____

AA Sequence (#) _____

Structure (#) 1

Bibliographic _____

Litigation _____

Fulltext _____

Patent Family _____

Other _____

Vendors and cost where applicable

STN 831054

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis _____

Sequence Systems _____

WWW/Internet _____

Other (specify) _____

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FILE 'REGISTRY' ENTERED AT 13:23:50 ON 11 MAR 2005
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FILE 'LREGISTRY' ENTERED AT 09:05:01 ON 11 MAR 2005

L1 STR

FILE 'REGISTRY' ENTERED AT 09:11:49 ON 11 MAR 2005

L2 0 S L1
L3 SCR 1918
L4 0 S L1 AND L3
L5 STR L1
L6 0 S L5 AND L3
L7 STR L5
L8 STR L7
L9 SCR 1965
L10 2 S L8 AND L9
L11 124 S L8 AND L9 FUL
SAV L11 GAR238/A

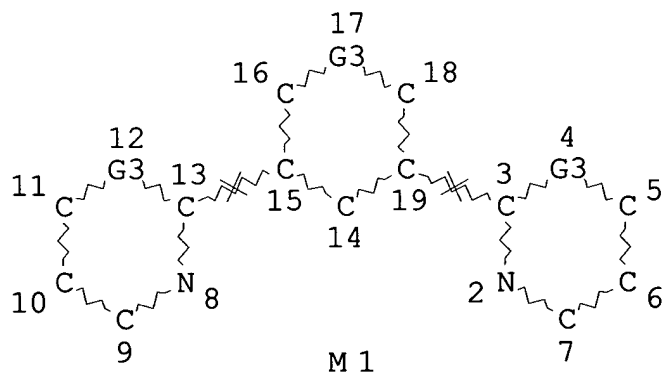
FILE 'CAPLUS' ENTERED AT 13:07:49 ON 11 MAR 2005

L12 50 S L11
L13 14 S L12 AND (?LUMINES? OR LED OR OLED OR LIGHT(3A)EMIT?)

FILE 'REGISTRY' ENTERED AT 13:23:50 ON 11 MAR 2005

=> d que l12

L8 STR



<SHRESTHA>

REM 04A30

REP G3=(0-1) C
NODE ATTRIBUTES:
NSPEC IS RC AT 1
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE
L9 SCR 1965
L11 124 SEA FILE=REGISTRY SSS FUL L8 AND L9
L12 50 SEA FILE=CAPLUS ABB=ON PLU=ON L11

=> fil caplus
FILE 'CAPLUS' ENTERED AT 13:24:11 ON 11 MAR 2005
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=> d l13 1-14 ibib abs hitstr hitind

L13 ANSWER 1 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:742180 CAPLUS
DOCUMENT NUMBER: 141:395647
TITLE: Synthesis and **Luminescence** of a
Charge-Neutral, Cyclometalated Iridium(III)
Complex Containing N-C-N- and
C-N-C-Coordinating Terdentate Ligands
AUTHOR(S): Wilkinson, Andrew J.; Goeta, Andres E.;
Foster, Clive E.; Williams, J. A. Gareth
CORPORATE SOURCE: Department of Chemistry, University of Durham,
Durham, DH1 3LE, UK
SOURCE: Inorganic Chemistry (2004), 43(21), 6513-6515
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:395647
AB The first examples of iridium(III) complexes containing a terdentate,

N-C-N-coordinated 1,3-di(2-pyridyl)benzene derivative, cyclometalated at C2 of the benzene ring, are reported. This mode of binding becomes significant only if competitive cyclometalation at C4/C6 is blocked, and the ligand 1,3-di(2-pyridyl)-4,6-dimethylbenzene (dpyxH) has been prepared to achieve this condition. The charge-neutral complex [Ir(dpyx)(dppy)], 2, (dppyH2 = 2,6-diphenylpyridine) has been isolated, containing dpyx and dppy bound to the metal through one and two carbon atoms, resp. A terpyridyl analog, [Ir(dpyx)(ttpy)](PF6)2, 3, (ttpy = 4'-tolylterpyridine) has also been prepared and its x-ray crystal structure determined, confirming the N-C-N binding mode of dpyx. Complex 2 emits strongly in degassed solution at 295 K (λ_{max} = 585 nm, ϕ = 0.21, τ = 3900 ns, in CH3CN). In solution, the excited state can also undergo photodissocn., through cleavage of one of the Ir-C(dppy) bonds.

IT **790278-99-8P**

(crystal structure; synthesis and **luminescence** of charge-neutral, cyclometalated iridium complex containing nitrogen-carbon coordinating terdentate ligands)

RN 790278-99-8 CAPLUS

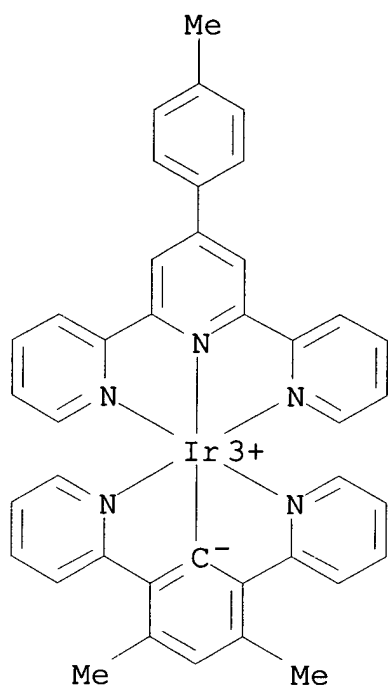
CN Iridium(2+), [3,5-dimethyl-2,6-di(2-pyridinyl- κ N)phenyl- κ C][4'-(4-methylphenyl)-2,2':6',2''-terpyridine- κ N1, κ N1', κ N1'']-, (OC-6-43)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 790278-98-7

CMF C40 H32 Ir N5

CCI CCS

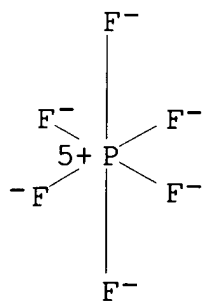


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 790278-96-5P

(synthesis and **luminescence** of charge-neutral,
cyclometalated iridium complex containing nitrogen-carbon

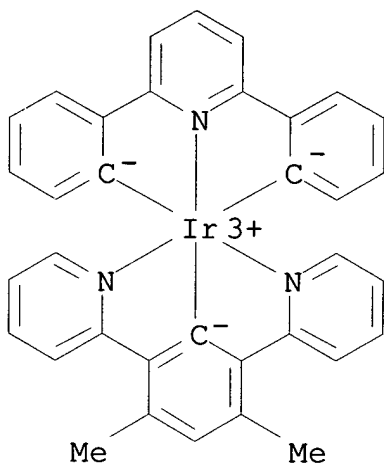
<SHRESTHA>

REM 04A30

coordinating terdentate ligands)

RN 790278-96-5 CAPLUS

CN Iridium, [3,5-dimethyl-2,6-di(2-pyridinyl-κN)phenyl-κC] [(2,6-pyridinediyl-κN)di(2,1-phenylene-κC)]-,
(OC-6-34)- (9CI) (CA INDEX NAME)

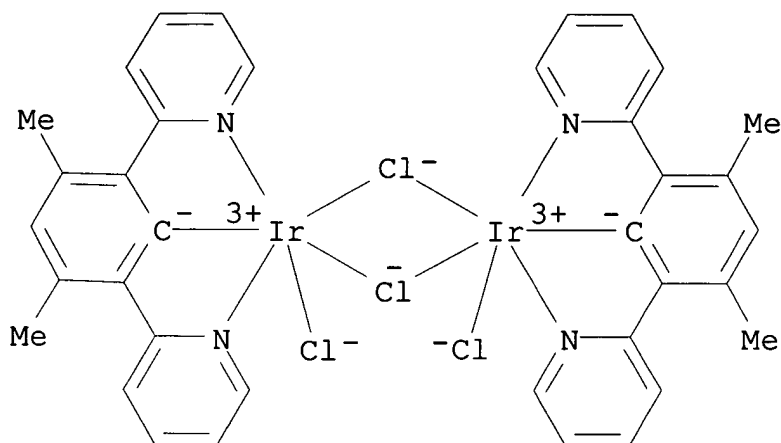


IT 790278-94-3P

(synthesis and **luminescence** of charge-neutral, cyclometalated iridium complex containing nitrogen-carbon coordinating terdentate ligands)

RN 790278-94-3 CAPLUS

CN Iridium(2+), di-μ-dichlorodichlorobis[3,5-dimethyl-2,6-di(2-pyridinyl-κN)phenyl-κC]- (9CI) (CA INDEX NAME)



- CC 29-13 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 22, 73, 75
- ST nitrogen carbon bonded **luminescence** charge neutral
 cyclometalated iridium terdentate; pyridyl benzene cyclometalated
 nitrogen carbon bonded iridium terdentate prepn; crystal mol
 structure dipyridylbenzene tolylterpyridine iridium cationic
 complex
- IT Metalation
 (cyclometalation; synthesis and **luminescence** of
 charge-neutral, cyclometalated iridium complex containing
 nitrogen-carbon coordinating terdentate ligands)
- IT **Luminescence**
 (synthesis and **luminescence** of charge-neutral,
 cyclometalated iridium complex containing nitrogen-carbon
 coordinating terdentate ligands)
- IT **790278-99-8P**
 (crystal structure; synthesis and **luminescence** of
 charge-neutral, cyclometalated iridium complex containing
 nitrogen-carbon coordinating terdentate ligands)
- IT **790278-96-5P**
 (synthesis and **luminescence** of charge-neutral,
 cyclometalated iridium complex containing nitrogen-carbon
 coordinating terdentate ligands)
- IT 3558-69-8, 2,6-Diphenylpyridine 89972-77-0 790279-01-5
 (synthesis and **luminescence** of charge-neutral,
 cyclometalated iridium complex containing nitrogen-carbon
 coordinating terdentate ligands)
- IT **790278-94-3P**
 (synthesis and **luminescence** of charge-neutral,

cyclometalated iridium complex containing nitrogen-carbon
coordinating terdentate ligands)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 2 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:513065 CAPLUS

DOCUMENT NUMBER: 141:79118

TITLE: Organic **light emitting**
materials and devices

INVENTOR(S): Thompson, Mark E.; Djurovich, Peter; Kwong,
Raymond; Tung, Yeh-Jiun; Knowles, David B.;
Brooks, Jason; Walters, Robert W.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 29 pp., Cont.-in-part
of U.S. Pat. Appl. 2004 86,742.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|---------------------------------------------------------|----------|-----------------|--------------|
| US 2004121184 | A1 | 20040624 | US 2003-643413 | 2003 0818 |
| US 2004086742 | A1 | 20040506 | US 2002-288785 | 2002 1106 |
| WO 2004045000 | A2 | 20040527 | WO 2003-US35295 | 2003 1104 |
| WO 2004045000 | A3 | 20041028 | | |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, | | | |
| | CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, | | | |
| | ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, | | | |
| | KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, | | | |
| | MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, | | | |
| | RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, | | | |
| | TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW | | | |
| RW: | BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, | | | |
| | AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, | | | |

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REM 04A30

CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
 GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2002-404213P

P

2002

0816

US 2002-288785

A2

2002

1106

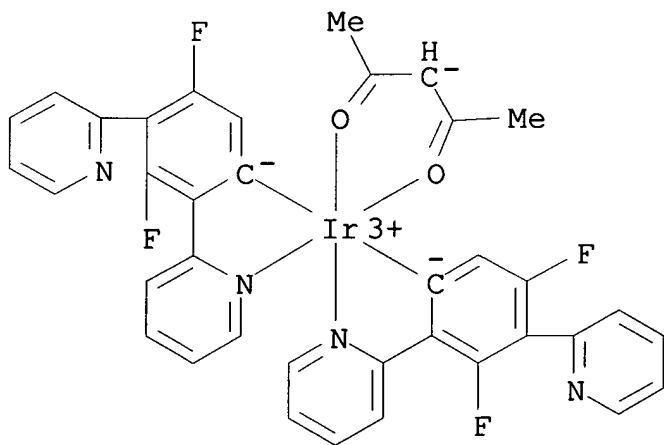
AB An organic **light emitting** device is provided.
 The device has an anode, a cathode, and an emissive layer disposed between the anode and the cathode, the emissive layer further comprising an emissive material having the structure: 1 wherein each of the variables are defined herein.

IT **665005-32-3P 665005-33-4P**

(preparation and **light emitting** properties of
 organic **light emitting** materials and devices)

RN 665005-32-3 CAPLUS

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-κN)-4-(2-pyridinyl)phenyl-κC] (2,4-pentanedionato-κO,κO')-
 (9CI) (CA INDEX NAME)

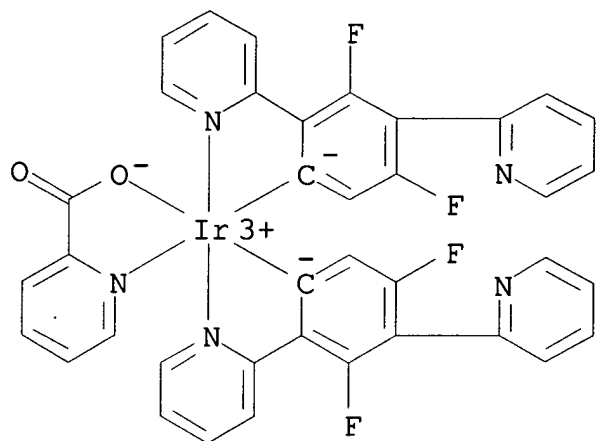


RN 665005-33-4 CAPLUS

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-κN)-4-(2-pyridinyl)phenyl-κC] (2-pyridinecarboxylato-κN1,κO2)- (9CI) (CA INDEX NAME)

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REM 04A30



- IC ICM H05B033-14
ICS C09K011-06
- NCL 428690000; 428917000; 313504000; 546004000
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST iridium complex org **light emitting** material device
- IT **Electroluminescent** devices
Phosphorescence
(preparation and **light emitting** properties of organic **light emitting** materials and devices)
- IT 50926-11-9, Indium tin oxide
(anode; preparation and **light emitting** properties of organic **light emitting** materials and devices)
- IT 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses
(cathode; preparation and **light emitting** properties of organic **light emitting** materials and devices)
- IT 58328-31-7, 4,4'-Bis(N-carbazolyl)biphenyl 143065-70-7
(doped with iridium complex; preparation and **light emitting** properties of organic **light emitting** materials and devices)
- IT 391604-55-0P 391611-77-1P 639478-13-0P 664989-77-9P
664989-84-8P
(intermediate; preparation and **light emitting** properties of organic **light emitting** materials and devices)
- IT 147-14-8, Copper phthalocyanine 2085-33-8, Alq3 123847-85-8,

α -NPD 146162-54-1, BA1q
 (preparation and **light emitting** properties of
 organic **light emitting** materials and devices)
 IT 665005-29-8P 665005-30-1P 665005-31-2P **665005-32-3P**
665005-33-4P 665005-34-5P 665005-35-6P 665005-36-7P
 665005-37-8P 665005-38-9P 666177-69-1P
 (preparation and **light emitting** properties of
 organic **light emitting** materials and devices)
 IT 337526-85-9P 376367-93-0P 500295-50-1P 500295-51-2P
 665005-14-1P 665005-15-2P 665005-16-3P 665005-17-4P
 665005-18-5P 665005-19-6P 665005-20-9P 665005-21-0P
 665005-22-1P 665005-23-2P 665005-24-3P 665005-25-4P
 665005-26-5P 665005-27-6P 665005-28-7P
 (preparation and **light emitting** properties of
 organic **light emitting** materials and devices)
 IT 337527-01-2P
 (preparation and **light emitting** properties of
 organic **light emitting** materials and devices)
 IT 10025-83-9, Iridium(III) chloride
 (preparation and **light emitting** properties of
 organic **light emitting** materials and devices)

L13 ANSWER 3 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:392544 CAPLUS
 DOCUMENT NUMBER: 140:414734
 TITLE: **Electroluminescent** device
 INVENTOR(S): Itoh, Hisanori; Nakayama, Yuji; Matsushima,
 Yoshimasa; Hori, Yoji; Tokito, Shizuo;
 Tsuzuki, Toshimitsu
 PATENT ASSIGNEE(S): Takasago International Corporation, Japan;
 Japan Broadcasting Corporation
 SOURCE: PCT Int. Appl., 81 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | |
| WO 2004039914 | A1 | 20040513 | WO 2003-JP13609 | 2003 1024 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
 FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
 MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO,
 RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL,
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
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PRIORITY APPLN. INFO.:

JP 2002-320399

A

2002
1101

JP 2003-57613

A

2003
0304

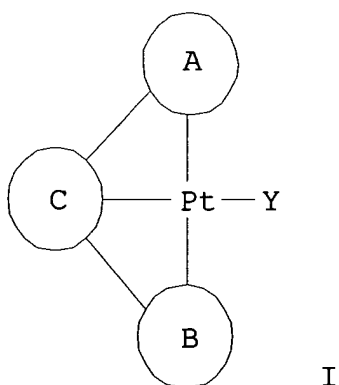
JP 2003-83049

A

2003
0325

OTHER SOURCE(S):
 GI

MARPAT 140:414734



AB **Electroluminescent** device comprising Pt complexes I,
 wherein any two of A to C are each independently an optionally

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REM 04A30

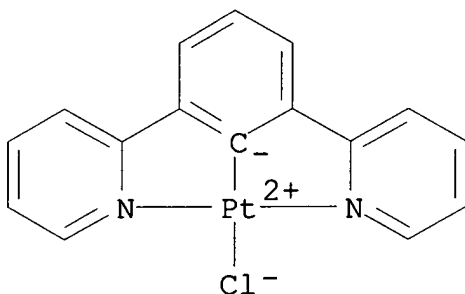
substituted aromatic N-heterocyclic group coordinating to the Pt atom at the N atom, and the other is optionally substituted aryl or heteroaryl; and Y is halo or an optionally substituted aryl or heteroaryl group which is bonded either directly or through O or S (with the proviso that when 2 adjacent rings are aromatic N-heterocyclic groups, the cases wherein Y is chloro are excepted, while when 2 nonadjacent rings are aromatic N-heterocyclic groups, the cases wherein Y is not halo are excepted).

IT **241818-94-0P 688349-46-4P 688349-47-5P**
688349-48-6P

(Pt complex **luminescent** material for
electroluminescent device)

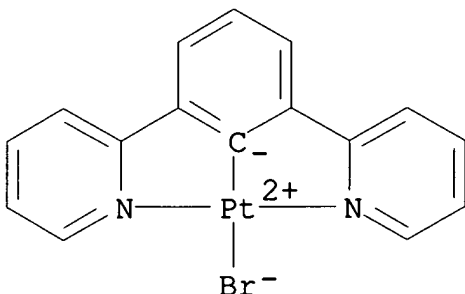
RN 241818-94-0 CAPLUS

CN Platinum, chloro[2,6-di(2-pyridinyl-κN)phenyl-κC]-,
 (SP-4-3)- (9CI) (CA INDEX NAME)



RN 688349-46-4 CAPLUS

CN Platinum, bromo[2,6-di(2-pyridinyl-κN)phenyl-κC]-,
 (SP-4-3)- (9CI) (CA INDEX NAME)

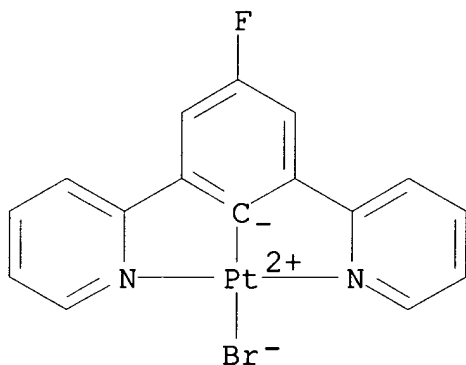


RN 688349-47-5 CAPLUS

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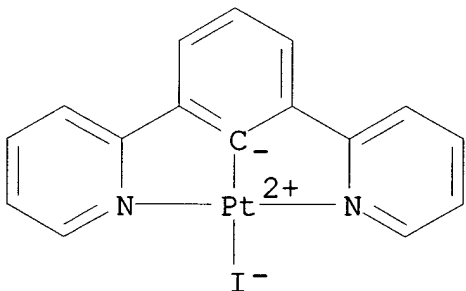
REM 04A30

CN Platinum, bromo[4-fluoro-2,6-di(2-pyridinyl- κ N)phenyl- κ C]-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 688349-48-6 CAPLUS

CN Platinum, [2,6-di(2-pyridinyl- κ N)phenyl- κ C]iodo-, (SP-4-3)- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS H05B033-14; H05B033-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST **electroluminescent** device platinum orthometalated complex

IT **Electroluminescent** devices

Luminescent substances

(Pt complex **luminescent** material for

electroluminescent device)

IT Platinum-group metal complexes

(orthometalated complexes; Pt complex **luminescent**

material for **electroluminescent** device)

IT 100-58-3P, Phenylmagnesium bromide 128025-96-7P
241818-94-0P 688349-46-4P 688349-47-5P
688349-48-6P 688349-49-7P 688349-50-0P 688349-51-1P
688349-52-2P 688349-53-3P 688349-54-4P 688349-55-5P
688349-56-6P 688349-57-7P

(Pt complex **luminescent** material for
electroluminescent device)

IT 108-36-1, 1,3-Dibromobenzene 111-78-4, 1,5-Cyclooctadiene
344-04-7, Pentafluorobromobenzene 366-18-7, 2,2'-Bipyridine
580-13-2, 2-Bromonaphthalene 1435-51-4 7647-15-6, Sodium
bromide, reactions 7681-82-5, Sodium iodide, reactions
10025-99-7, Potassium tetrachloroplatinate 12266-61-4
16002-63-4, Phenylmagnesium iodide 17997-47-6,
(2-Pyridyl)tributylstannane 25677-69-4, 2,9-Diphenyl-1,10-
phenanthroline 51786-73-3 61633-06-5, 6-Phenyl-2,2'-bipyridyl
85575-95-7

(Pt complex **luminescent** material for
electroluminescent device)

IT 12080-32-9P, Dichloro(1,5-cyclooctadiene)platinum(II)
21702-84-1P, 2,4-Dibromoanisole 112084-27-2P 136538-84-6P
208346-82-1P 688320-82-3P 688320-84-5P 688349-58-8P
688349-59-9P 688349-60-2P

(Pt complex **luminescent** material for
electroluminescent device)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 4 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:390228 CAPLUS

DOCUMENT NUMBER: 140:414642

TITLE: Platinum complexes for
electroluminescent device

INVENTOR(S): Itoh, Hisanori; Nakayama, Yuji; Matsushima,
Yoshimasa; Hori, Yoji

PATENT ASSIGNEE(S): Takasago International Corporation, Japan

SOURCE: PCT Int. Appl., 93 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

<SHRESTHA> REM 04A30

WO 2004039781

A1

20040513

WO 2003-JP13317

2003
1017

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
 FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
 KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
 MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO,
 RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL,
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,
 GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

JP 2002-320455

A

2002
1101

JP 2003-57603

A

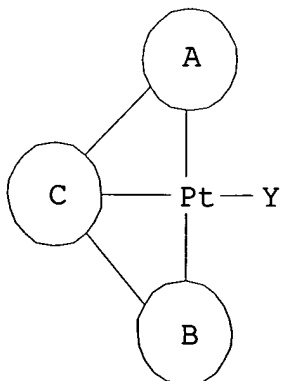
2003
0304

JP 2003-83035

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2003
0325OTHER SOURCE(S):
GI

MARPAT 140:414642



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REM 04A30

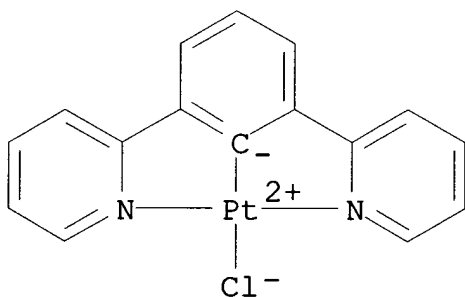
AB The invention aims at providing Pt complexes useful as materials for **light emitting** devices and extremely excellent in heat stability, light emission characteristics, and light emission efficiency, and a process for effective preparation thereof. The invention relates to Pt complexes I, wherein any two of A, B and C are each independently an optionally substituted nitrogenous aromatic heterocyclic group and the other is optionally substituted aryl or optionally substituted heteroaryl; and Y is halo or an optionally substituted aryl or heteroaryl group which is bonded either directly or through O (-O-) or S (-S-) (with the proviso that when the adjacent 2 rings are nitrogenous aromatic heterocyclic groups, the cases wherein Y is chloro are excepted, while when the nonadjacent 2 rings are nitrogenous aromatic heterocyclic groups, the cases wherein Y is not halo are excepted).

IT **241818-94-0P 688349-46-4P 688349-47-5P
688349-48-6P**

(**luminescent** platinum complexes for
electroluminescent device)

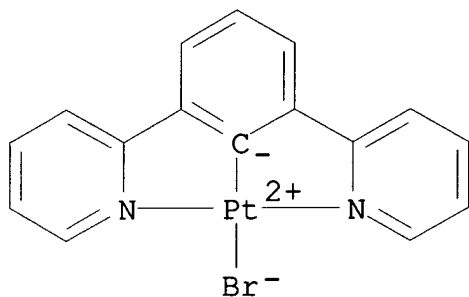
RN 241818-94-0 CAPLUS

CN Platinum, chloro[2,6-di(2-pyridinyl- κ N)phenyl- κ C]-,
(SP-4-3)- (9CI) (CA INDEX NAME)



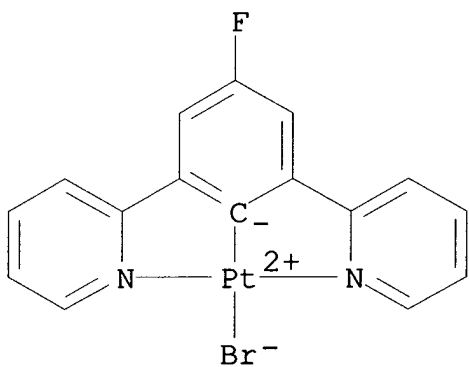
RN 688349-46-4 CAPLUS

CN Platinum, bromo[2,6-di(2-pyridinyl- κ N)phenyl- κ C]-,
(SP-4-3)- (9CI) (CA INDEX NAME)



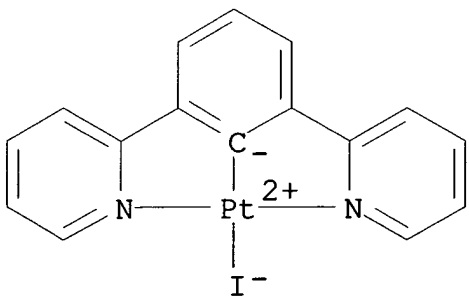
RN 688349-47-5 CAPLUS

CN Platinum, bromo[4-fluoro-2,6-di(2-pyridinyl-κN)phenyl-κC]-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 688349-48-6 CAPLUS

CN Platinum, [2,6-di(2-pyridinyl-κN)phenyl-κC]iodo-, (SP-4-3)- (9CI) (CA INDEX NAME)



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REM 04A30

IC ICM C07D213-53
ICS C07D213-06; C07D213-30; C07D213-26; C07D213-22; C09K011-06;
H05B033-14; C07D409-14; C07D401-04; C07D401-14; C07D405-14;
C07D413-14; C07D413-04; C07D417-04

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)
Section cross-reference(s): 27

ST platinum complex **luminescent** material
electroluminescent device

IT **Electroluminescent** devices
Luminescent substances
(**luminescent** platinum complexes for
electroluminescent device)

IT Platinum-group metal complexes
(**luminescent** platinum complexes for
electroluminescent device)

IT 128025-96-7P **241818-94-0P 688349-46-4P**
688349-47-5P 688349-48-6P 688349-49-7P
688349-50-0P 688349-51-1P 688349-52-2P 688349-53-3P
688349-54-4P 688349-55-5P 688349-56-6P 688349-57-7P
688349-58-8P 688349-59-9P 688349-60-2P
(**luminescent** platinum complexes for
electroluminescent device)

IT 100-58-3, Phenylmagnesium bromide 108-36-1, 1,3-Dibromobenzene
111-78-4, 1,5-Cyclooctadiene 366-18-7, 2,2'-Bipyridine
580-13-2, 2-Bromonaphthalene 879-05-0,
Pentafluorophenylmagnesium bromide 1435-51-4 7647-15-6, Sodium
bromide, reactions 7681-82-5, Sodium iodide, reactions
10025-99-7, Potassium tetrachloroplatinate 12080-32-9
16002-63-4, Phenylmagnesium iodide 17997-47-6,
(2-Pyridyl)tributylstannane 21702-84-1, 2,4-Dibromoanisole
25677-69-4, 2,9-Diphenyl-1,10-phenanthroline 51786-73-3
61633-06-5, 6-Phenyl-2,2'-bipyridyl 85575-95-7
(**luminescent** platinum complexes for
electroluminescent device)

IT 112084-27-2P 136538-84-6P 208346-82-1P 688320-82-3P
688320-84-5P
(**luminescent** platinum complexes for
electroluminescent device)

L13 ANSWER 5 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:162752 CAPLUS
DOCUMENT NUMBER: 140:225503
TITLE: Organic **light emitting**

<SHRESTHA>

REM 04A30

INVENTOR(S): materials and devices
 Thompson, Mark E.; Djurovich, Peter I.; Kwong, Raymond
 PATENT ASSIGNEE(S): The University of Southern California, USA;
 Universal Display Corporation
 SOURCE: PCT Int. Appl., 73 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|--------------|
| ----- | ---- | ----- | ----- | |
| WO 2004016711 | A1 | 20040226 | WO 2003-US25938 | 2003 0818 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| US 2004086742 | A1 | 20040506 | US 2002-288785 | 2002 1106 |
| WO 2004045000 | A2 | 20040527 | WO 2003-US35295 | 2003 1104 |
| WO 2004045000 | A3 | 20041028 | | |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, | | | | |

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REM 04A30

AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY,
 CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
 GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

US 2002-404213P

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2002
 0816

US 2002-288785

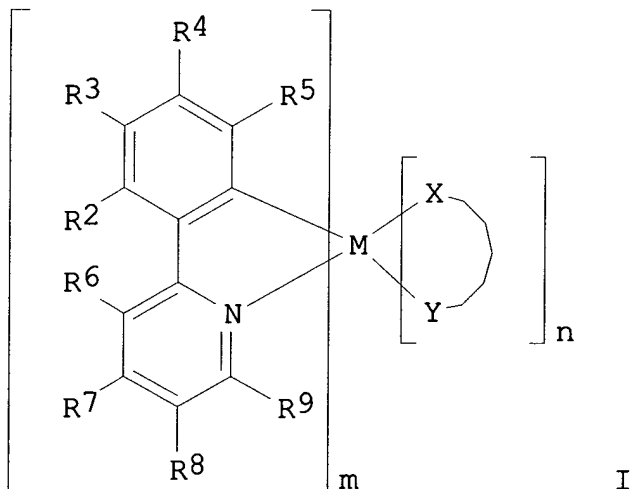
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2002
 1106

OTHER SOURCE(S):

MARPAT 140:225503

GI



AB An emissive material is described represented by the general formula I wherein M is a heavy metal ≥ 40 mol. weight; R3 is a substituent having a Hammett value < -0.17 , $-0.15-0.05$, or > 0.07 ; each of R2-R9 are independently selected from the group consisting of H, halogens, CN, CF₃, CnF_{2n+1}, trifluorovinyl, NO₂, CO₂R, C(O)R, S(O)R, SO₂R, SO₃R, P(O)R, PO₂R, PO₃R, CCR, alkyl, alkenyl, aryl, heteroaryl, aryl or heteroaryl groups substituted with halogens, CN, CF₃, CnF_{2n+1}, trifluorovinyl, NO₂, CO₂R, C(O)R, S(O)R, SO₂R, SO₃R, P(O)R, PO₂R, or PO₃R; OR, SR, NR₂ (including

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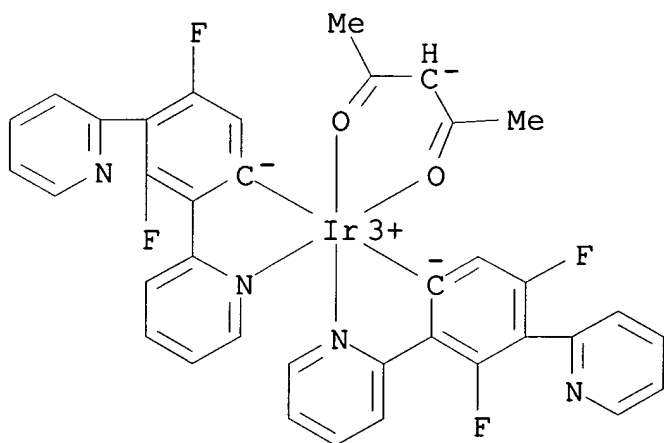
cyclic-amino), PR₂ (including cyclic-phosphino), where R is hydrogen, an alkyl group, an aryl group or a heteroaryl group; m is an integer between 1 and 4 and n is an integer between 1 and 3; and, -[X-Y]- ring is a monoanionic non carbon coordinated ligand. A **light-emitting** device comprising the organic emissive material is also described.

IT 665005-32-3P 665005-33-4P

(emissive material; organic **light emitting** materials and **light-emitting** device using them)

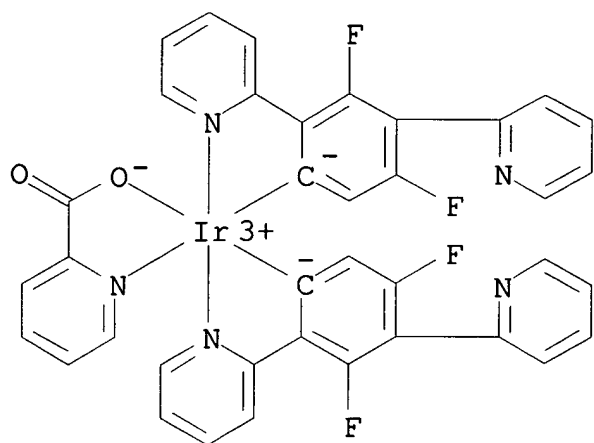
RN 665005-32-3 CAPLUS

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-κN)-4-(2-pyridinyl)phenyl-κC] (2,4-pentanedionato-κO,κO')- (9CI) (CA INDEX NAME)



RN 665005-33-4 CAPLUS

CN Iridium, bis[3,5-difluoro-2-(2-pyridinyl-κN)-4-(2-pyridinyl)phenyl-κC] (2-pyridinecarboxylato-κN1,κO2)- (9CI) (CA INDEX NAME)



- IC ICM C09K011-06
ICS H05B033-14
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 49, 76, 78
- IT **Electroluminescent** devices
(organic **light emitting** materials and **light-emitting** device using them)
- IT Stille coupling reaction
Suzuki coupling reaction
(organic **light emitting** materials prepared by)
- IT Coordination compounds
(organic **light emitting** materials prepared by)
- IT 50926-11-9, Indium tin oxide
(anode; organic **light emitting** materials and **light-emitting** device using them)
- IT 337526-85-9P 376367-93-0P 500295-50-1P 500295-51-2P
665005-14-1P 665005-15-2P 665005-16-3P 665005-17-4P
665005-18-5P 665005-19-6P 665005-20-9P 665005-21-0P
665005-22-1P 665005-23-2P 665005-24-3P 665005-25-4P
665005-26-5P 665005-27-6P 665005-28-7P 665005-29-8P
665005-30-1P 665005-31-2P **665005-32-3P**
665005-33-4P 665005-34-5P 665005-35-6P 665005-36-7P
665005-37-8P 665005-38-9P 666177-69-1P
(emissive material; organic **light emitting** materials and **light-emitting** device using them)
- IT 147-14-8, Copper phthalocyanine 58328-31-7, 4,4'-Bis(N-carbazolyl)biphenyl 123847-85-8, α -NPD 143065-70-7

146162-54-1, BA1q 550378-78-4
(organic **light emitting** materials and
light-emitting device using them)
IT 391604-55-0P 664989-84-8P
(organic **light emitting** materials and
light-emitting device using them)
IT 109-04-6, 2-Bromopyridine 497-19-8, Sodium carbonate, reactions
603-35-0, Triphenylphosphine, reactions 3375-31-3 10025-83-9,
Iridium chloride 13965-03-2 17997-47-6, 2-
Tributylstannylpyridine 32075-31-3, Pyridine carboxylic acid
36511-33-8, Bromopyridine 73852-19-4, 3,5-
Bis(trifluoromethyl)phenylboronic acid 114866-94-3, Pentanedione
144025-03-6 261945-71-5 664989-77-9
(organic **light emitting** materials and
light-emitting device using them)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 6 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:906510 CAPLUS
DOCUMENT NUMBER: 140:94135
TITLE: An Alternative Route to Highly
Luminescent Platinum(II) Complexes:
Cyclometalation with N-C-N-Coordinating
Dipyridylbenzene Ligands
AUTHOR(S): Williams, J. A. Gareth; Beeby, Andrew; Davies,
E. Stephen; Weinstein, Julia A.; Wilson,
Claire
CORPORATE SOURCE: Department of Chemistry, University of Durham,
Durham, DH1 3LE, UK
SOURCE: Inorganic Chemistry (2003), 42(26), 8609-8611
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:94135
AB The remarkable **luminescence** properties of the
platinum(II) complex of 1,3-di(2-pyridyl)benzene, acting as a
terdentate N-C-N-coordinating ligand cyclometalated at C2 of the
benzene ring ([PtL1Cl]), have been investigated, together with
those of two new 5-substituted analogs [PtL2Cl] and [PtL3Cl] {HL2
= methyl-3,5-di(2-pyridyl)benzoate; HL3 = 3,5-di(2-
pyridyl)toluene}. All three complexes are intense emitters in
degassed solution at 298 K (λ_{max} 480-580 nm; ϕ_{lum} = 0.60,

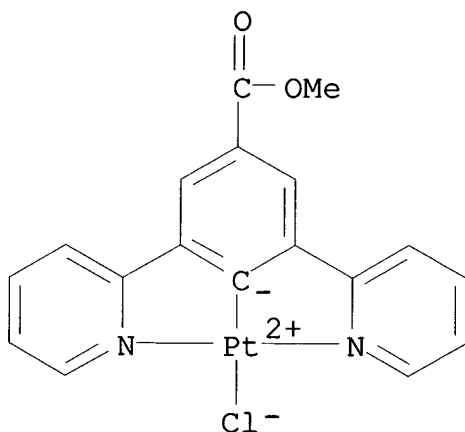
0.58, and 0.68 in CH₂Cl₂), displaying highly structured emission spectra in dilute solution, with lifetimes in the microsecond range (7.2, 8.0, and 7.8 μs). On the basis of the very small Stokes shift, the highly structured profiles, and the relatively long lifetimes, the emission is attributed to an excited state of primarily 3π-π* character. At concns. >1 × 10⁻⁵ M, structureless excimer emission centered at ca. 700 nm is observed. The x-ray crystal structure of [PtL₂Cl] is also reported.

IT **643063-86-9P**

(crystal structure; preparation and characterization of highly **luminescent** platinum complexes via cyclometalation with N-C-N-coordinating dipyridylbenzene ligands)

RN 643063-86-9 CAPLUS

CN Platinum, chloro[4-(methoxycarbonyl)-2,6-di(2-pyridinyl-κN)phenyl-κC]-, (SP-4-3)- (9CI) (CA INDEX NAME)

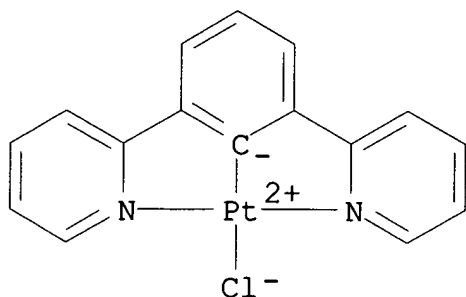


IT **241818-94-0P 643063-88-1P**

(preparation and characterization of highly **luminescent** platinum complexes via cyclometalation with N-C-N-coordinating dipyridylbenzene ligands)

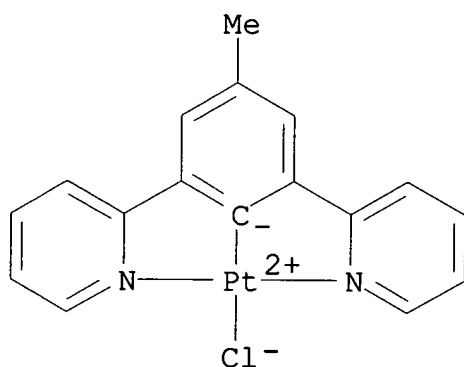
RN 241818-94-0 CAPLUS

CN Platinum, chloro[2,6-di(2-pyridinyl-κN)phenyl-κC]-, (SP-4-3)- (9CI) (CA INDEX NAME)



RN 643063-88-1 CAPLUS

CN Platinum, chloro[4-methyl-2,6-di(2-pyridinyl-κN)phenyl-κC]-, (SP-4-3)- (9CI) (CA INDEX NAME)



CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 72, 73, 75

ST **luminescent** platinum cyclometalated nitrogen carbon coordinating pyridyl benzene prepn; cyclometalated platinum pyridyl benzoate prepn crystal mol structure; emission spectra cyclometalated platinum pyridyl benzene complex

IT Metalation

(cyclometalation; preparation and characterization of highly **luminescent** platinum complexes via cyclometalation with N-C-N-coordinating dipyridylbenzene ligands)

IT Redox reaction

(electrochem.; preparation and characterization of highly **luminescent** platinum complexes via cyclometalation with N-C-N-coordinating dipyridylbenzene ligands)

IT Crystal structure

Molecular structure
(of highly **luminescent** cycloplatinated
N-C-N-coordinating dipyridylbenzene ligand)

IT Emission spectra
Luminescence
(preparation and characterization of highly **luminescent**
platinum complexes via cyclometalation with N-C-N-coordinating
dipyridylbenzene ligands)

IT **643063-86-9P**
(crystal structure; preparation and characterization of highly
luminescent platinum complexes via cyclometalation with
N-C-N-coordinating dipyridylbenzene ligands)

IT 366-18-7P, 2,2'-Bipyridine
(preparation and characterization of highly **luminescent**
platinum complexes via cyclometalation with N-C-N-coordinating
dipyridylbenzene ligands)

IT **241818-94-0P 643063-88-1P**
(preparation and characterization of highly **luminescent**
platinum complexes via cyclometalation with N-C-N-coordinating
dipyridylbenzene ligands)

IT 1611-92-3, 3,5-Dibromotoluene 10025-99-7, Dipotassium
tetrachloroplatinate 17997-47-6, 2-(Tributylstannyl)pyridine
51329-15-8, Methyl 3,5-dibromobenzoate 136538-84-6
(preparation and characterization of highly **luminescent**
platinum complexes via cyclometalation with N-C-N-coordinating
dipyridylbenzene ligands)

IT 249928-02-7P 643063-84-7P
(preparation and characterization of highly **luminescent**
platinum complexes via cyclometalation with N-C-N-coordinating
dipyridylbenzene ligands)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 7 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:638320 CAPLUS
DOCUMENT NUMBER: 140:121462
TITLE: Pyrene-bridged bis(phenanthroline) ligands and
their dinuclear ruthenium(II) complexes
AUTHOR(S): Chouai, Latif; Wu, Feiyue; Jang, Youngchan;
Thummel, Randolph P.
CORPORATE SOURCE: Department of Chemistry, University of
Houston, Houston, TX, 77204-5003, USA
SOURCE: European Journal of Inorganic Chemistry
(2003), (15), 2774-2782

<SHRESTHA> REM 04A30

CODEN: EJICFO; ISSN: 1434-1948

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The Friedlaender condensation of 8-amino-7-quinolinecarbaldehyde with four isomeric diacetylpynes provides the corresponding 1,3-, 1,6-, 1,8-, and 2,7-bis(2'-[1',10']phenanthrolynyl)pyrenes. These ligands, along with the tetrahydro analog to the 2,7-pyrene-bridged isomer, were treated with $[\text{Ru}(\text{D8}]\text{bpy})_2\text{Cl}_2]$, where $\text{D8}]\text{bpy} = [\text{D8}]2,2'$ -bipyridine, to afford the dinuclear RuII complexes, ^1H NMR and x-ray crystallog. anal. of which indicate that the bridging pyrene is layered between a $\text{D8}]\text{bpy}$ auxiliary ligand coordinated to each metal atom. Although well situated for π - π interactions, little such effect is seen on the photophys. and electrochem. properties of these complexes.

IT **646034-99-3P**

(preparation and cyclic voltammetry and **luminescence** spectra and electronic spectra)

RN 646034-99-3 CAPLUS

CN Ruthenium(4+), tetrakis(2,2'-bipyridine-3,3',4,4',5,5',6,6'-d8- $\kappa\text{N}1,\kappa\text{N}1'$) [μ -[2,2'-(1,3-pyrenediyl)bis[1,10-phenanthroline- $\kappa\text{N}1,\kappa\text{N}10$]]]di-, tetrakis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

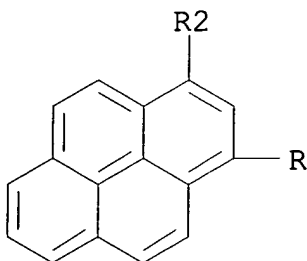
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CRN 646034-98-2

CMF C80 H22 D32 N12 Ru2

CCI CCS

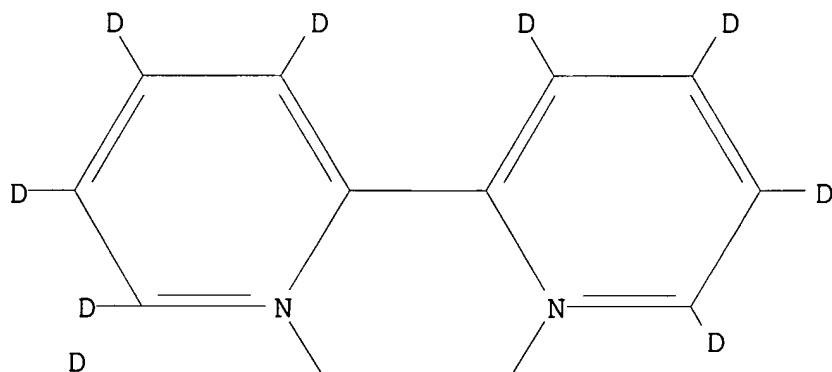
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REM 04A30

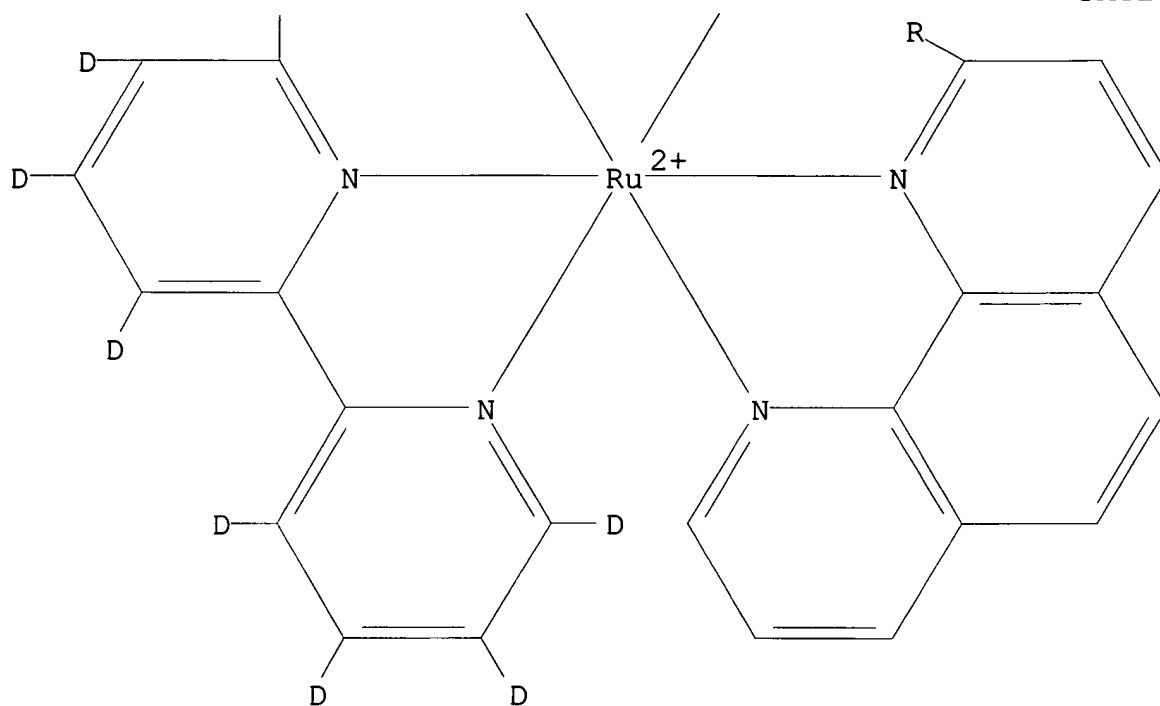
PAGE 2-A



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REM 04A30

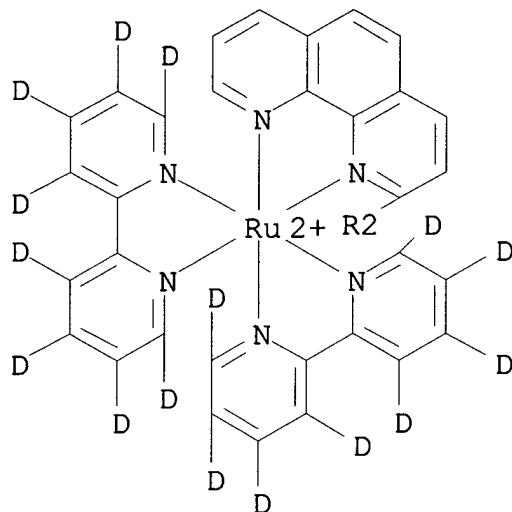
PAGE 3-A



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REM 04A30

PAGE 4-A

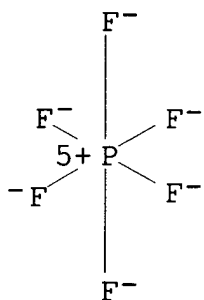


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 28, 72, 73, 75
 ST phenanthrolinepyrene prepn complexation ruthenium; ruthenium
 phenanthrolinepyrene complex prepn electrochem redox
luminescence; crystal structure ruthenium
 phenanthrolinepyrene bipyridine dinuclear complex

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REM 04A30

IT **Luminescence**

Oxidation, electrochemical

Oxidation potential

Reduction, electrochemical

Reduction potential

UV and visible spectra

(of ruthenium bis(phenanthroline)pyrene bipyridine dinuclear complexes)

IT 238760-51-5P 646034-77-7P 646034-80-2P 646034-81-3P

646034-87-9P

(preparation and complexation with ruthenium bipyridine complex and **luminescence** and electronic spectra of)IT 646034-90-4P 646034-93-7P 646034-97-1P **646034-99-3P**(preparation and cyclic voltammetry and **luminescence** spectra and electronic spectra)

IT 646034-95-9P

(preparation and cyclic voltammetry and **luminescence** spectra and electronic spectra and crystal structure)

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 8 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:729964 CAPLUS

DOCUMENT NUMBER: 136:53870

TITLE: Cyclometalated Complexes of Ru(II) with 2-Aryl
Derivatives of Quinoline and
1,10-Phenanthroline

AUTHOR(S): Bonnefous, Celine; Chouai, Abdellatif;
Thummel, Randolph P.

CORPORATE SOURCE: Department of Chemistry, University of
Houston, Houston, TX, 77204-5003, USA

SOURCE: Inorganic Chemistry (2001), 40(23), 5851-5859
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 136:53870

AB Difficulty in cyclometalating 1-(2'-quinolinyl)pyrene and
1,3-di-(2'-quinolinyl)pyrene with Ru(II) **led** to a more
detailed study of the cyclometalation process. A series of
2-aryl-1,10-phenanthrolines, where aryl = Ph, 2-naphthyl,
1-anthracenyl, and 1-pyrenyl, were treated with [Ru(tpy)Cl₃] to
provide either the N5Cl complex [Ru(tpy)(L)Cl]⁺ or this same
material as a mixture with the N5C cyclometalated species

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REM 04A30

[Ru(tpy)L]⁺. Steric effects appear to govern the ability of the ligand to attain the near planar conformation required for cyclometalation. The bridged ligand 3,1'-dimethylene-2-(2'-pyrenyl)-1,10-phenanthroline was prepared along with a quinoline analog. The former species was found to cyclometalate at the C1 of pyrene and afford the N5C1 complex. Both the N5C (P21/n (monoclinic), *a* = 28.1102(11), *b* = 8.4638(3), *c* = 31.2908(12) Å, *Z* = 8) and N5C1 (P-1 (triclinic), *a* = 11.7235 (10), *b* = 14.5306(12), *c* = 14.5725(12) Å, *Z* = 2) complexes were analyzed by x-ray crystallog., and the N5C1 species evidenced a congested environment for pyrene, which is apparently stabilized by π stacking with tpy. Similar reactions with a series of three 3,2'-bridged derivs. of 2-phenyl-1,10-phenanthroline provide both N5C1 and cyclometalated products in proportions which support the importance of π stacking. The electronic absorption spectra and redox potentials for these complexes evidence strong σ donation by the cyclometalated ligand and an apparent insensitivity to the orthogonal 2-aryl group.

IT **382139-53-9P**

(preparation and redox potentials of cyclometalated complexes of ruthenium with aryl derivs. of quinoline and phenanthroline)

RN 382139-53-9 CAPLUS

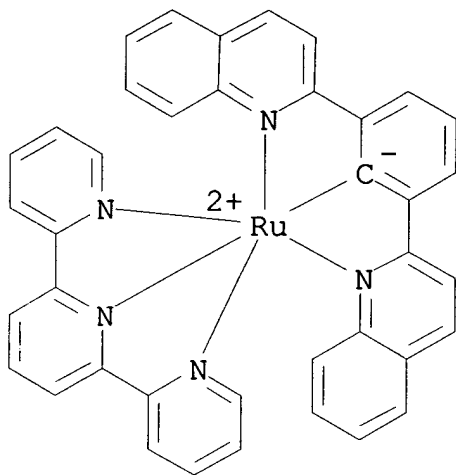
CN Ruthenium(2+), [2,6-bis(2-quinolinyl- κ N)phenyl- κ C](2,2':6',2''-terpyridine- κ N1, κ N1', κ N1'')-, (OC-6-42)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 382139-52-8

CMF C39 H26 N5 Ru

CCI CCS

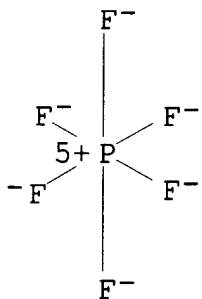


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



CC 29-13 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 72, 75

IT **382139-53-9P** 382139-55-1P 382139-57-3P 382139-59-5P
 382139-61-9P 382139-63-1P 382139-65-3P 382139-69-7P
 382139-71-1P 382139-73-3P 382139-75-5P 382139-77-7P
 382139-79-9P 382139-84-6P

(preparation and redox potentials of cyclometalated complexes of
 ruthenium with aryl derivs. of quinoline and phenanthroline)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE

<SHRESTHA>

REM 04A30

FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L13 ANSWER 9 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:569696 CAPLUS

DOCUMENT NUMBER: 131:337154

TITLE: An efficient synthesis of versatile
terpyridine analogues for cyclometallated
luminescent cyclodextrins

AUTHOR(S): Chavarot, Murielle; Pikramenou, Zoe

CORPORATE SOURCE: Department of Chemistry, The University of
Edinburgh, King's Buildings, Edinburgh, EH9
3JJ, UK

SOURCE: Tetrahedron Letters (1999), 40(37), 6865-6868
CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 131:337154

AB An efficient synthetic method for preparing functionalized terpyridyl
analogues based on Negishi's zinc coupling is developed. These
ligands form cyclometallated complexes; attaching them to
cyclodextrins allows preparation of **luminescent**
cyclometallated ruthenium cyclodextrins for the assembly of
photo-active units via non-covalent interactions.

IT **250217-45-9P**
(preparation and **luminescent** properties of
[(methylphenyl)terpyridine][(dipyridinylphenyl)cyclodextrin]rut
henium complex)

RN 250217-45-9 CAPLUS

CN Ruthenium(1+), [4-[(2A,2B,2C,2D,2E,2F,2G,3A,3B,3C,3D,3E,3F,3G,6B,6
C,6D,6E,6F,6G-eicosa-O-methyl- β -cyclodextrin-6A-O-yl)methyl]-
2,6-di(2-pyridinyl- κ N)phenyl- κ C][4'-(4-methylphenyl)-
2,2':6',2''-terpyridine- κ N1, κ N1', κ N1'']-,
(OC-6-42)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 250217-44-8

CMF C101 H138 N5 O35 Ru


CCI CCS

<SHRESTHA>

REM 04A30

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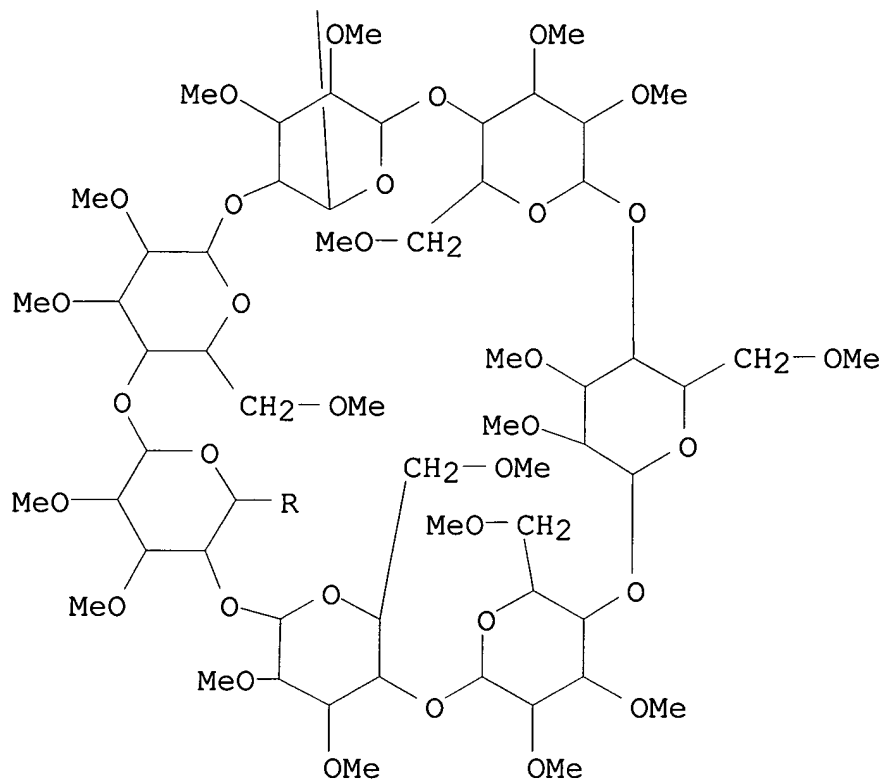
MeO-CH₂



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REM 04A30

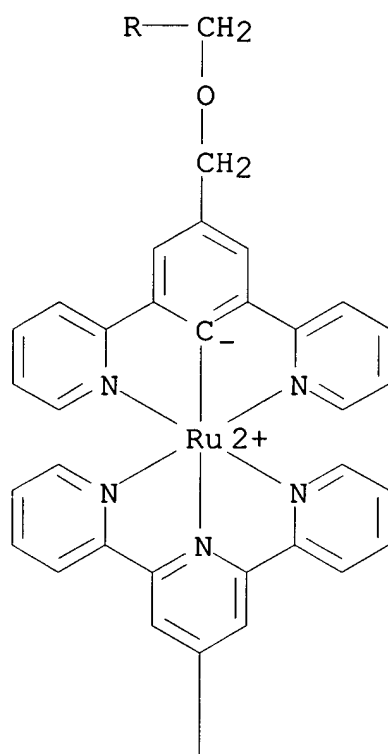
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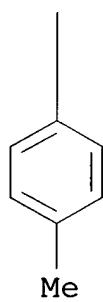
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REM 04A30

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PAGE 4-A



CM 2

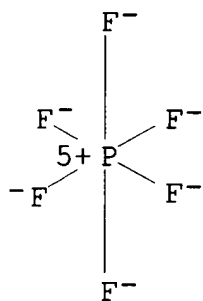
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REM 04A30

CRN 16919-18-9

CMF F6 P

CCI CCS



CC 29-13 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 27, 33, 73

ST **luminescent** substance terpyridine
 pyridinylphenylcyclodextrin ruthenium prepn

IT **Luminescent** substances
 (preparation and **luminescent** properties of
 [(methylphenyl)terpyridine][(dipyridinylphenyl)cyclodextrin]rut
 henium complex)

IT 109-04-6, 2-Bromopyridine 626-39-1, 1,3,5-Tribromobenzene
 1611-92-3, 1,3-Dibromo-5-methylbenzene 94789-61-4,
 6-Monohydroxypermethyl- β -cyclodextrin 136276-24-9
 250225-99-1
 (preparation and **luminescent** properties of
 [(methylphenyl)terpyridine][(dipyridinylphenyl)cyclodextrin]rut
 henium complex)

IT 249928-02-7P 249928-03-8P 249928-04-9P
 (preparation and **luminescent** properties of
 [(methylphenyl)terpyridine][(dipyridinylphenyl)cyclodextrin]rut
 henium complex)

IT 150239-89-7P **250217-45-9P** 250226-00-7P
 (preparation and **luminescent** properties of
 [(methylphenyl)terpyridine][(dipyridinylphenyl)cyclodextrin]rut
 henium complex)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L13 ANSWER 10 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

<SHRESTHA> REM 04A30

ACCESSION NUMBER: 1997:807184 CAPLUS
DOCUMENT NUMBER: 128:96896
TITLE: Ruthenium(II) and osmium(II) complexes with
new terdentate polyquinoline and
cyclometalating ligands. Synthesis, NMR
characterization, **luminescence**
properties, and electrochemical behavior
AUTHOR(S): Mamo, Antonino; Stefio, Ivan; Poggi, Antonio;
Tringali, Corrado; Di Pietro, Cinzia;
Campagna, Sebastiano
CORPORATE SOURCE: Istituto Chimico, Facolta Ingegneria,
Universita Catania, Catania, 95125, Italy
SOURCE: New Journal of Chemistry (1997), 21(11),
1173-1185
CODEN: NJCHE5; ISSN: 1144-0546
PUBLISHER: Gauthier-Villars
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ru(II) and Os(II) complexes with new polyquinoline and
cyclometalating terdentate ligands were synthesized and fully
characterized by ¹H and ¹³C NMR. The new ligands are
2,6-bis(7'-methyl-4'-phenyl-2'-quinolyl)pyridine (bmpqpy) and its
N-C--N cyclometalating homolog, 1,3-bis(7'-methyl-4'-phenyl-2'-
quinolyl)benzene (bmpqb-H); the complexes studied are
[Ru(bmpqpy)₂](PF₆)₂ (1), Ru(bmpqpy)Cl₃ (2),
[Ru(bmpqpy)(bmpqb)](PF₆) (3, bmpqb- is the anion of bmpqb-H),
[Ru(bmpqb)(terpy)](PF₆) (4, terpy = 2,2':6',2''-terpyridine),
[Ru(bmpqpy)(tppz)](PF₆)₂ (5, tppz = 2,3,5,6-tetra(2'-
pyridyl)pyrazine), [Os(bmpqpy)₂](PF₆)₂ (6), Os(bmpqpy)Cl₃ (7), and
[Os(bmpqpy)(bmpqb)](PF₆) (8). The absorption spectra, redox
behavior, and **luminescence** properties (both at 77 K in a
rigid butyronitrile matrix and at room temperature in a fluid MeCN
solution) of the bis-terdentate complexes were studied. The
complexes have noticeable absorption properties throughout the
visible region, due to spin-allowed metal-to-ligand
charge-transfer (MLCT) transitions. In the Os-containing complexes,
spin-forbidden MLCT transitions contribute significantly to the
visible light absorption. The complexes undergo metal-centered
oxidation processes and ligand-centered reduction processes in the
potential window studied (-2.0 to +1.6 V vs. SCE). All the
bis-terdentate complexes exhibit **luminescence** at 77 K
and 1, 4, 5, 6, and 8 also exhibit **luminescence** at room
temperature in the near-IR. The **luminescence** originates in
all cases from triplet MLCT excited states. The lack of room
temperature **luminescence** of 3 (as well as the very weak room

temperature **luminescence** of 1) is attributed to the presence in 3 (and in 1) of two terdentate polyquinoline ligands, which leads to increased steric hindrance around the metal with respect to the terdentate polypyridine ligands in octahedral complexes. Because of their properties, these complexes are interesting species in terms of light-harvesting compds. and can be regarded as useful energy traps when inserted into supramol. arrays.

IT **201002-40-6P**

(preparation and **luminescence** of)

RN 201002-40-6 CAPLUS

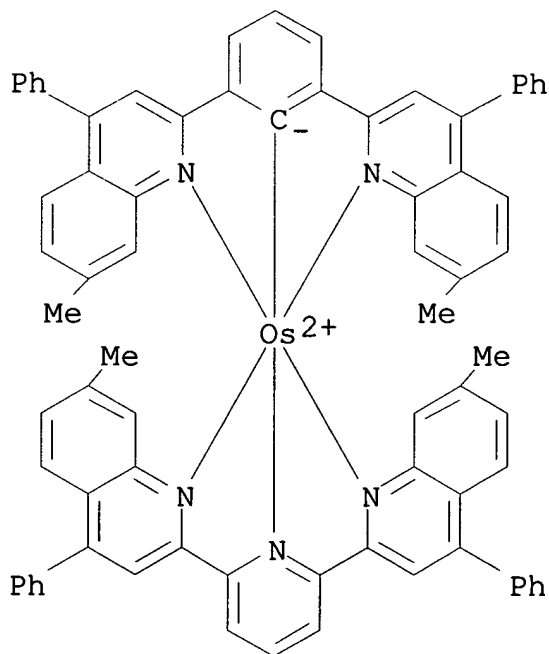
CN Osmium(1+), [2,6-bis(7-methyl-4-phenyl-2-quinolinyl- κ N)phenyl- κ C][2,2'-(2,6-pyridinediyl- κ N)bis[7-methyl-4-phenylquinoline- κ N]]-, (OC-6-42)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 201002-39-3

CMF C75 H54 N5 Os

CCI CCS

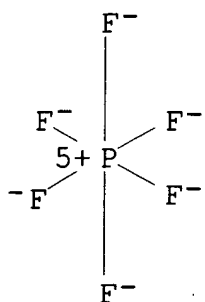


CM 2

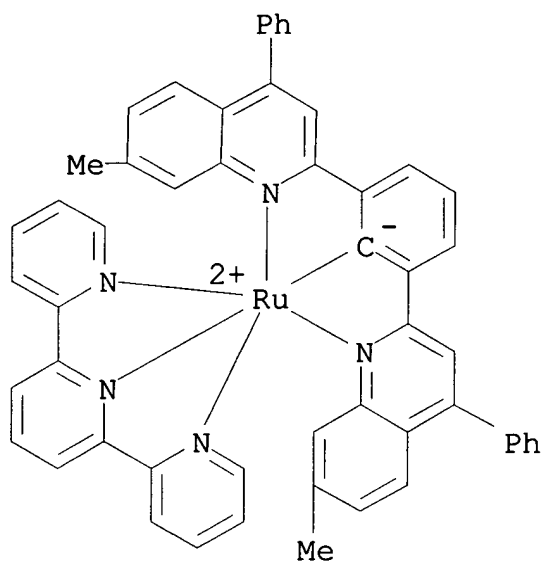
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REM 04A30

CRN 16919-18-9
 CMF F6 P
 CCI CCS



IT **201002-35-9P**
 (preparation, **luminescence** and oxidation and reduction potentials
 of)
 RN 201002-35-9 CAPLUS
 CN Ruthenium(1+), [2,6-bis(7-methyl-4-phenyl-2-quinolinyl-
 κ N)phenyl- κ C] (2,2':6',2''-terpyridine-
 κ N1, κ N1', κ N1'')-, (OC-6-42)-,
 hexafluorophosphate(1-) (9CI) (CA INDEX NAME)
 CM 1
 CRN 201002-34-8
 CMF C53 H38 N5 Ru
 CCI CCS

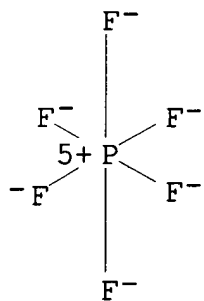


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS

IT **201002-33-7P**

(preparation, oxidation and reduction potentials of)

RN 201002-33-7 CAPLUS

CN Ruthenium(1+), [2,6-bis(7-methyl-4-phenyl-2-quinolinyl- κ N)phenyl- κ C][2,2'-(2,6-pyridinediyl- κ N)bis[7-methyl-4-phenylquinoline- κ N]]-, (OC-6-42)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

<SHRESTHA>

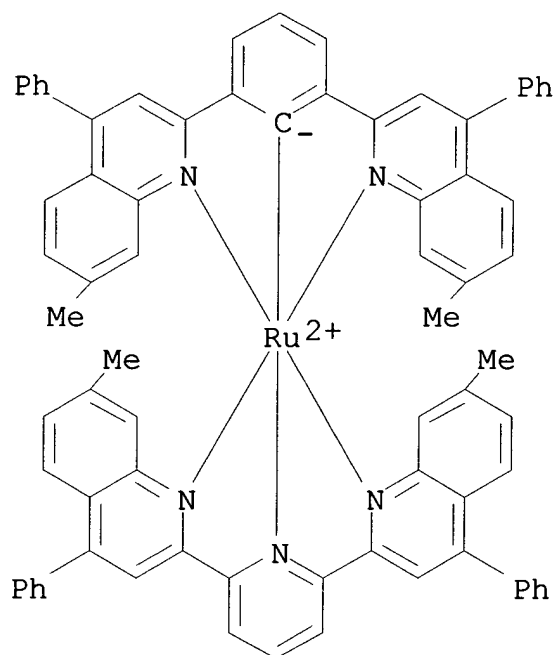
REM 04A30

CM 1

CRN 201002-32-6

CMF C75 H54 N5 Ru

CCI CCS



CM 2

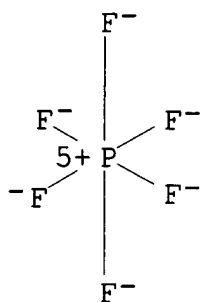
CRN 16919-18-9

CMF F6 P

CCI CCS

<SHRESTHA>

REM 04A30



CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 27, 29, 72, 73

ST ruthenium pyridinebisquinoline phenylenebisquinoline complex
 prepn; osmium pyridinebisquinoline phenylenebisquinoline complex
 prepn; pyridinebisquinoline prepn ruthenium osmium complex;
 phenylenebisquinoline prepn ruthenium osmium complex; electrochem
 ruthenium osmium polyquinoline complex; **luminescence**
 ruthenium osmium polyquinoline complex

IT **Luminescence**
 NMR (nuclear magnetic resonance)
 Reduction potential
 (of osmium and ruthenium pyridinebis(quinoline) and
 phenylenebis(quinoline) derivative complexes)

IT 179612-58-9P **201002-40-6P**
 (preparation and **luminescence** of)

IT 201002-30-4P **201002-35-9P** 201002-37-1P
 (preparation, **luminescence** and oxidation and reduction potentials
 of)

IT **201002-33-7P**
 (preparation, oxidation and reduction potentials of)

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L13 ANSWER 11 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:168823 CAPLUS

DOCUMENT NUMBER: 126:310333

TITLE: Vectorial transfer of electronic energy in
 rod-like ruthenium-osmium dinuclear complexes

AUTHOR(S): Barigelletti, Francesco; Flamigni, Lucia;
 Collin, Jean-Paul; Sauvage, Jean-Pierre

CORPORATE SOURCE: Ist. FRAE-CNR, Bologna, 40129, Italy

SOURCE: Chemical Communications (Cambridge) (1997),

(4), 333-338

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER:

Royal Society of Chemistry

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB Dinuclear complexes containing ruthenium and osmium-based bis-terpyridyl chromophoric termini are prepared and their **luminescence** properties investigated. The two chromophoric units are connected by 1,4-phenylenes only, or phenylene and bicyclooctane spacers. In this way complete control of the geometry of the dinuclear complexes is achieved and these rigid species resemble mol. rods or girders featuring intermetal distances in the range 11-24 Å. The Ru → Os transfer of electronic excitation is energetically allowed and we have studied the effect on this process both of the intermetal separation and the electronic properties of the spacers. The main conclusions are that the phenylene spacers are very efficient in transmitting the intermetal electronic communication but an important role is also played by the spatial localization of the metal-to-ligand charge-transfer excited states involved in the excitation-transfer process.

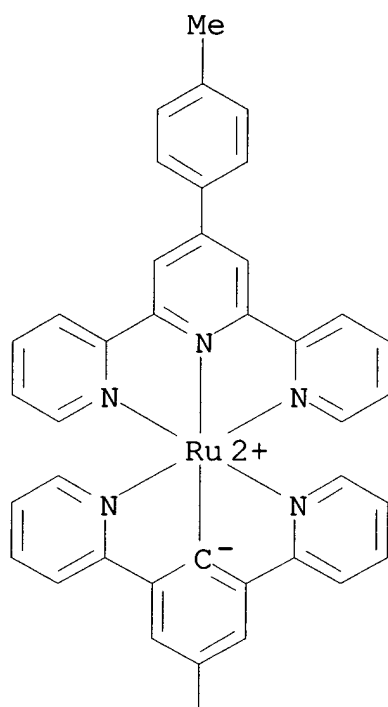
IT **155643-21-3 173410-51-0 173410-53-2**

(vectorial transfer of electronic energy in rod-like ruthenium-osmium dinuclear complexes)

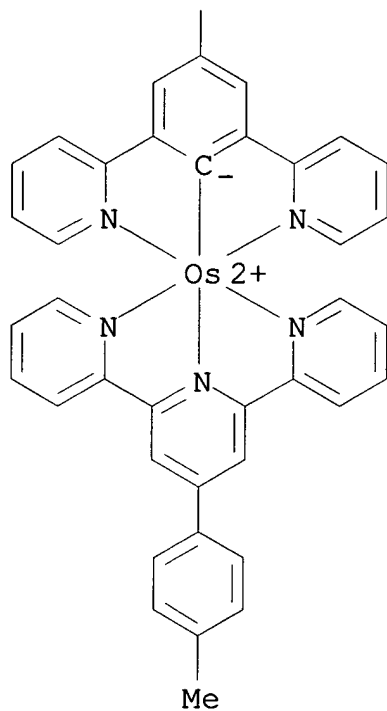
RN 155643-21-3 CAPLUS

CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-κN1,κN1',κN1''][[4'-(4-methylphenyl)-2,2':6',2''-terpyridine-κN1,κN1',κN1'']ruthenium][μ-[3,3',5,5'-tetra(2-pyridinyl-κN)[1,1'-biphenyl]-4,4'-diyl-κC4:κC4']]- (9CI) (CA INDEX NAME)

PAGE 1-A



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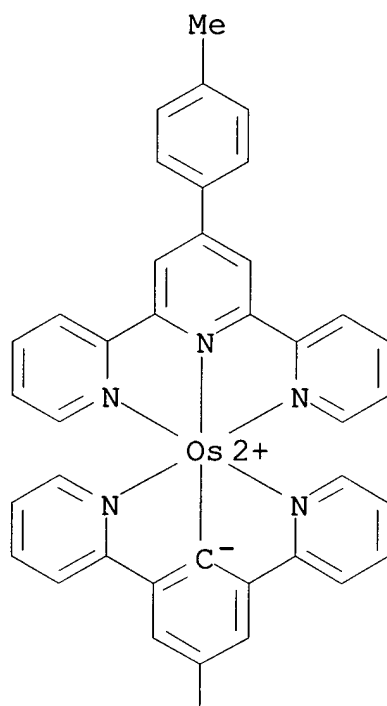


RN 173410-51-0 CAPLUS
 CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-
 κN1,κN1',κN1''] [[4'-(4-methylphenyl)-2,2':6',2''-
 terpyridine-κN,κN1',κN1''] ruthenium] [μ-
 [3,3'',5,5''-tetra(2-pyridinyl-κN) [1,1':4',1''-terphenyl]-
 4,4''-diyl-κC4:κC4'']] - (9CI) (CA INDEX NAME)

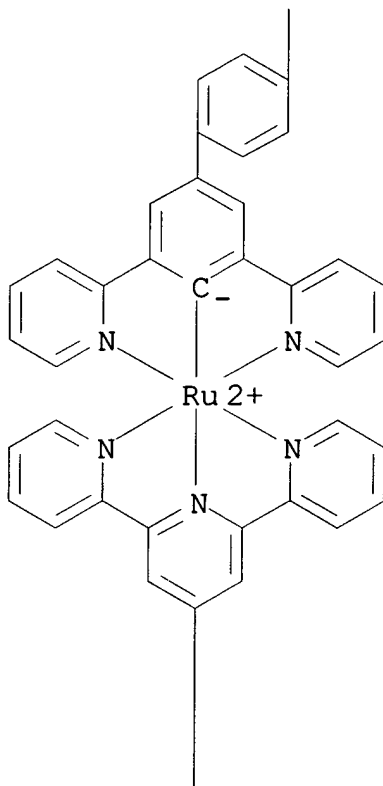
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REM 04A30

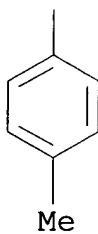
PAGE 1-A



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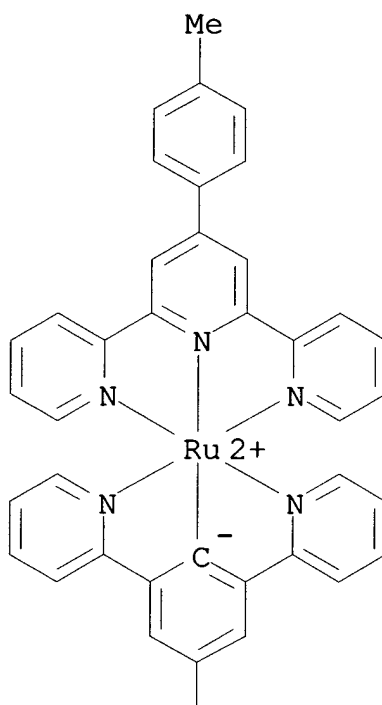
RN 173410-53-2 CAPLUS
 CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-
 κN1,κN1',κN1''] [[4'-(4-methylphenyl)-2,2':6',2''-
 terpyridine-κN1,κN1',κN1''] ruthenium] [μ-
 [3,3''',5,5'''-tetra(2-pyridinyl-κN) [1,1':4',1'':4'',1'''-

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REM 04A30

quaterphenyl]-4,4'''-diyl-κC4:C4''']]- (9CI) (CA INDEX
NAME)

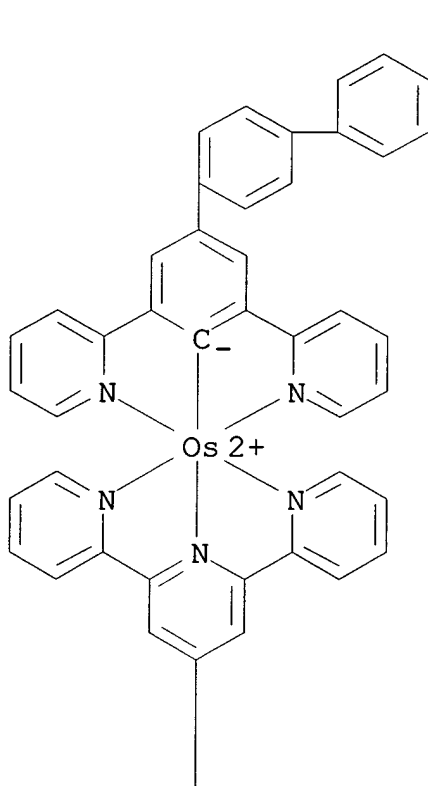
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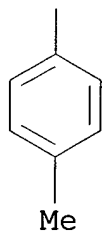
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REM 04A30

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CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 73
IT **Luminescence**
(vectorial transfer of electronic energy in rod-like

<SHRESTHA>

REM 04A30

ruthenium-osmium dinuclear complexes)

IT 149830-59-1 149830-60-4 149830-61-5 **155643-21-3**

173410-51-0 173410-53-2 178742-49-9

(vectorial transfer of electronic energy in rod-like
 ruthenium-osmium dinuclear complexes)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L13 ANSWER 12 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1995:983044 CAPLUS

DOCUMENT NUMBER: 124:146439

TITLE: Energy Transfer in Rigid Ru(II)/Os(II)
 Dinuclear Complexes with Biscyclometalating
 Bridging Ligands Containing a Variable Number
 of Phenylene Units

AUTHOR(S): Barigelletti, Francesco; Flamigni, Lucia;
 Guardigli, Massimo; Juris, Alberto; Beley,
 Marc; Chodorowski-Kimmes, Sandrine; Collin,
 Jean-Paul; Sauvage, Jean-Pierre

CORPORATE SOURCE: Istituto FRAE, CNR, Bologna, 40129, Italy

SOURCE: Inorganic Chemistry (1996), 35(1), 136-42

CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors have prepared rodlike cyclometalated Ru(II)/Os(II)
 dinuclear complexes, (ttp)Ru(dpb-(ph)n-dpb)Os(ttp)₂⁺, where the
 biscyclometalating bridging ligands contain dipyridylbenzene
 fragments, dpb, separated by a variable number, n, of phenylene
 spacers,

and the terminal ligand is a terpyridine derivative [dpbH is
 di-2-pyridyl-1,3-benzene, ttp is 4'-p-tolyl-2,2',6',2''-

terpyridine, and n = 0-2]. The rigid bridging ligands keep the
 metal centers at a distance r_{MM} = 11, 15.5, and 20 Å,

depending on n. Photoinduced energy transfer has been

investigated by **luminescence** spectroscopy in nitrile
 solvents at room temperature and at 77 K (i.e., in frozen medium).

According to a classical description of the process, the energy
 transfer occurs in a nearly activationless regime, is governed by
 electronic factors, and can be described in terms of the

Dexter-type mechanism. The obtained energy transfer rates roughly
 span 3 orders of magnitude and indicate (i) that the temperature

(i.e.,

the state of the solvent) has a small influence on the process and

(ii) that the interposed phenylene spacers are weak attenuators of intercenter electronic coupling, $H [H = H_0 \exp(-\beta r_{MM})]$, with β .apprx. 0.33 \AA^{-1}].

IT **173410-48-5P 173410-50-9P 173410-52-1P**
173410-54-3P

(energy transfer in rigid ruthenium/osmium dinuclear complexes with biscyclometalating bridging ligands containing a variable

number

of phenylene units)

RN 173410-48-5 CAPLUS

CN Ruthenium(1+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] (3,3'',5,5''-tetra-2-pyridinyl[1,1':4',1''-terphenyl]-4-yl-C4,N3,N5)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

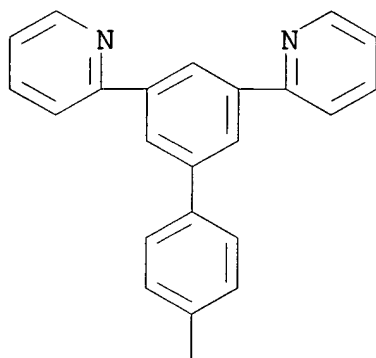
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CRN 173410-47-4

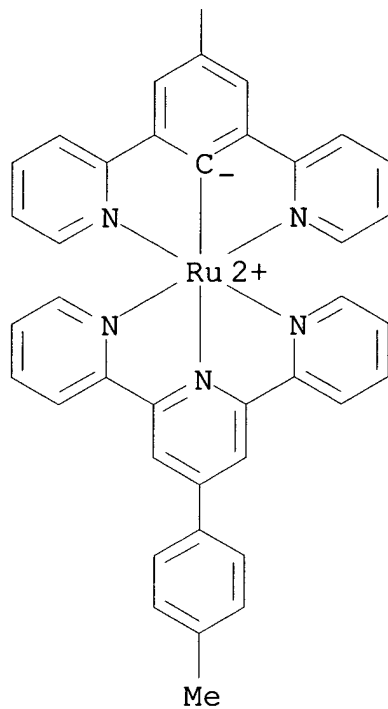
CMF C60 H42 N7 Ru

CCI CCS

PAGE 1-A



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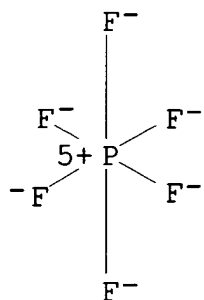


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 173410-50-9 CAPLUS

<SHRESTHA>

REM 04A30

CN Ruthenium(1+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] (3,3''',5,5'''-tetra-2-pyridinyl[1,1':4',1'':4'',1'''-quaterphenyl]-4-yl-C4,N3,N5)-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

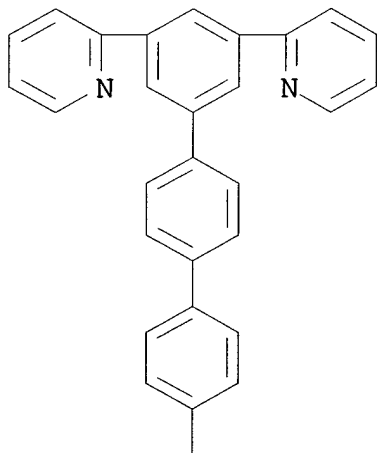
CM 1

CRN 173410-49-6

CMF C66 H46 N7 Ru

CCI CCS

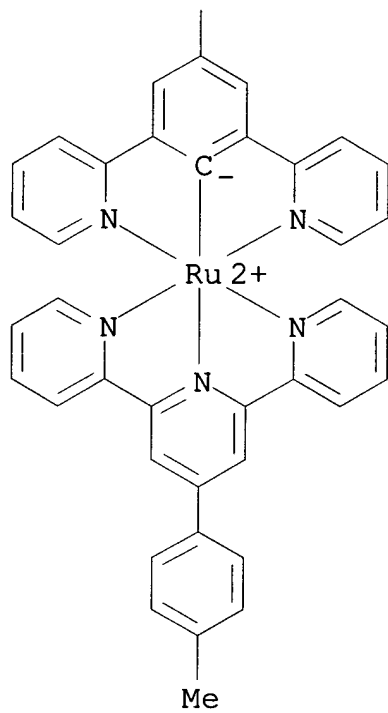
PAGE 1-A



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REM 04A30

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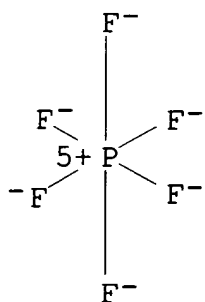


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



RN 173410-52-1 CAPLUS

<SHRESTHA>

REM 04A30

CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] [[4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N'']ruthenium] [μ -(3,3'',5,5''-tetra-2-pyridinyl[1,1':4',1''-terphenyl]-4,4''-diyl-C4,N3,N5:C4'',N3'',N5'')] -, bis[hexafluorophosphate(1-)] (9CI)
(CA INDEX NAME)

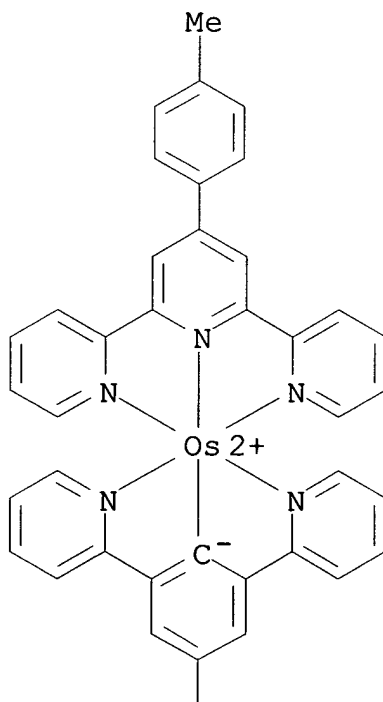
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CRN 173410-51-0

CMF C82 H58 N10 Os Ru

CCI CCS

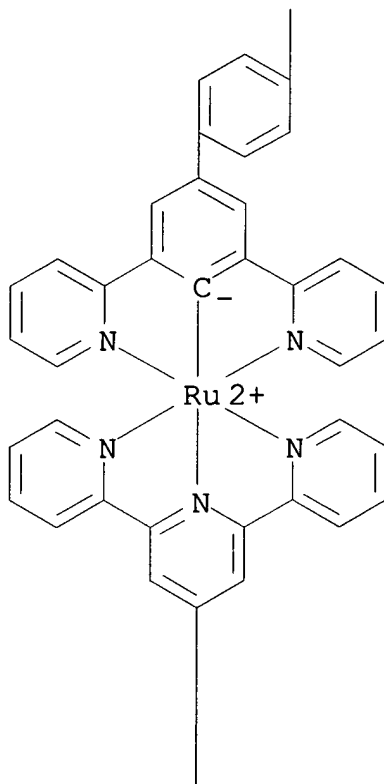
PAGE 1-A



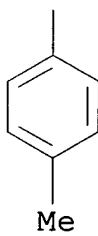
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REM 04A30

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CM 2

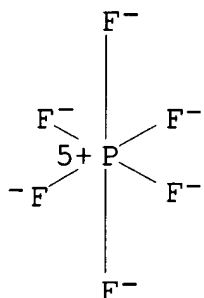
CRN 16919-18-9

CMF F6 P

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REM 04A30

CCI CCS



RN 173410-54-3 CAPLUS

CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] [[4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] ruthenium] [μ -(3,3''',5,5'''-tetra-2-pyridinyl[1,1':4',1'':4'',1'''-quaterphenyl]-4,4'''-diyl-C4,N3,N5:C4''',N3''',N5''')] -, bis[hexafluorophosphate(1-)] (9CI)
(CA INDEX NAME)

CM 1

CRN 173410-53-2

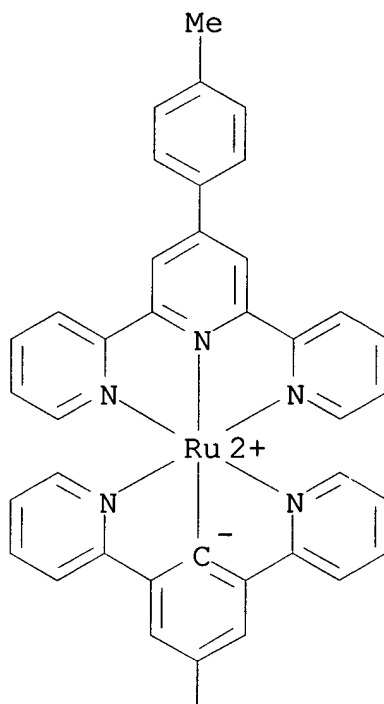
CMF C88 H62 N10 Os Ru

CCI CCS

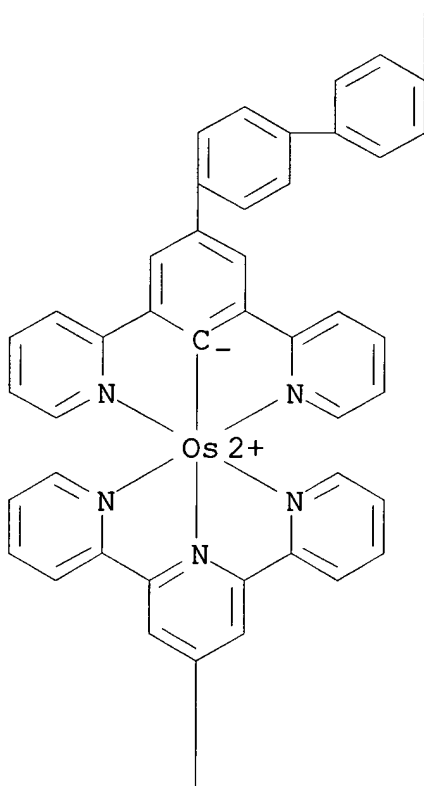
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REM 04A30

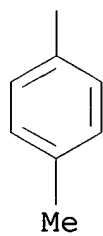
PAGE 1-A



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CM 2

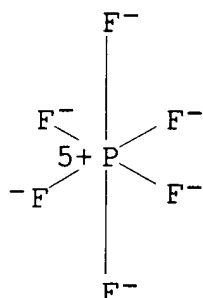
CRN 16919-18-9

CMF F6 P

<SHRESTHA>

REM 04A30

CCI CCS



- CC 29-13 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22, 72, 73
- ST energy transfer ruthenium osmium dinuclear phenylene;
biscyclometalating bridging phenylene ruthenium osmium dinuclear;
luminescence phenylene bridging osmium ruthenium
dinuclear; cyclic voltammetry phenylene bridging osmium ruthenium
- IT **Luminescence**
Ultraviolet and visible spectra
(energy transfer in rigid ruthenium/osmium dinuclear complexes
with biscyclometalating bridging ligands containing a variable
number of phenylene units)
- IT **173410-48-5P 173410-50-9P 173410-52-1P**
173410-54-3P
(energy transfer in rigid ruthenium/osmium dinuclear complexes
with biscyclometalating bridging ligands containing a variable
number of phenylene units)

L13 ANSWER 13 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:421401 CAPLUS
DOCUMENT NUMBER: 121:21401
TITLE: **Luminescent** dinuclear complexes
containing ruthenium(II)- and
osmium(II)-terpyridine-type chromophores
bridged by a rigid biscyclometalating ligand
AUTHOR(S): Beley, Marc; Chodorowski, Sandrine; Collin,
Jean-Paul; Sauvage, Jean-Pierre; Flamigni,
Lucia; Barigilletti, Francesco
CORPORATE SOURCE: Faculte de Chimie, Universite Louis Pasteur,
Strasbourg, F-6700, Fr.

SOURCE: Inorganic Chemistry (1994), 33(12), 2543-7
CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The spectroscopic properties (UV-vis absorption and **luminescence**) of Ru(II)- and Os(II)-based mononuclear and dinuclear complexes containing terdentate terpyridine-type (ttp) and related cyclometalating (dpb-, and tpbp2-) ligands are reported [ttp is 4'-p-tolyl-2,2':6',2''-terpyridine, dpbH is di-o-pyridyl-1,3-benzene, tpbpH2 is 3,3',5,5'-tetrapyridylbiphenyl]. For the dinuclear species, [(ttp)M(tpbp)M'(ttp)]²⁺, the biscyclometalating dianionic tpbp2- ligand bridges the two metal centers, which are held at a fixed distance of 11 Å [M, M' = Ru, Os]. The five complexes are weakly **luminescent** at room temperature, λ_{max} .apprx. 790 nm, ϕ .apprx. 2×10^{-5} , and τ .apprx. 1 ns for the ruthenium complexes, and λ_{max} .apprx. 820 nm, ϕ .apprx. 1×10^{-6} and τ .apprx. 10 ps (estimated) for the osmium-containing complexes. The **luminescence** properties are compared to the electrochemical behavior and are discussed in terms of a high degree of covalency for the metal-ligand interaction. For the heterodinuclear [(ttp)Ru(tpbp)Os(tp)]²⁺ complex, the Ru → Os energy transfer step, which is exothermic by .apprx.0.16 eV, is very efficient ($k_{\text{et}} \geq 7 \times 10^9 \text{ s}^{-1}$), and **luminescence** only occurs from the Os-based component. The energy transfer takes place according to an exchange-type mechanism.

IT 151834-29-6 151864-13-0 155643-21-3

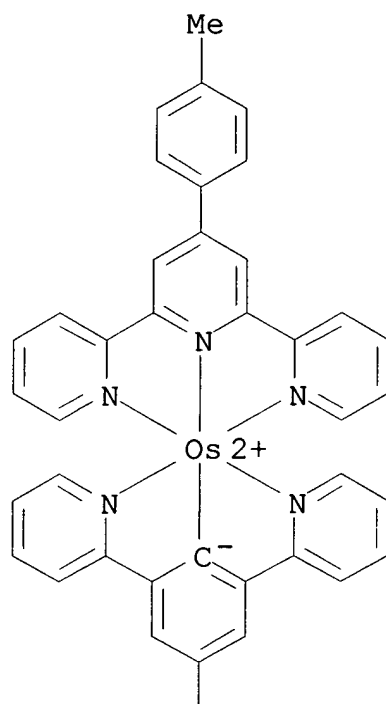
155643-44-0 155643-45-1

(**luminescence** and absorption spectra of)

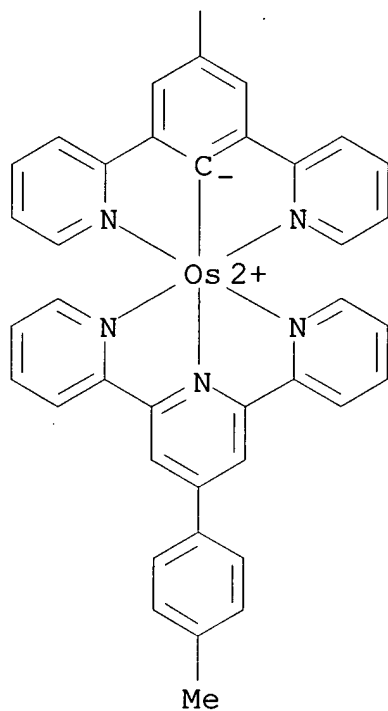
RN 151834-29-6 CAPLUS

CN Osmium(2+), bis[4'-(4-methylphenyl)-2,2':6'.2''-terpyridine-N,N',N''] [μ -(3,3',5,5'-tetra-2-pyridinyl[1,1'-biphenyl]-4,4'-diyl-C4,N3,N5:C4',N3',N5')] di- (9CI) (CA INDEX NAME)

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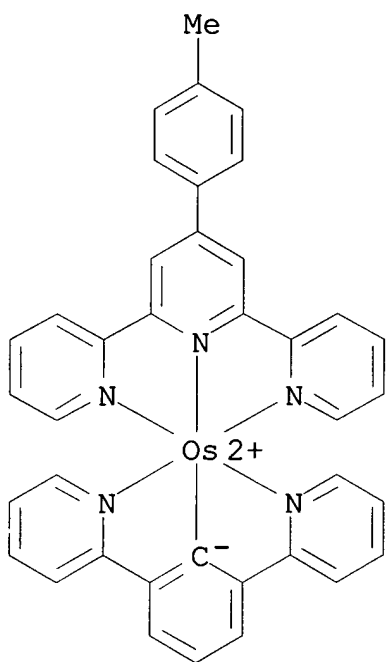
PAGE 2-A



RN 151864-13-0 CAPLUS
 CN Osmium(1+), (2,6-di-2-pyridinylphenyl-C,N,N') [4'-(4-methylphenyl)-
 2,2':6',2''-terpyridine-N,N',N'']-, (OC-6-42)- (9CI) (CA INDEX
 NAME)

<SHRESTHA>

REM 04A30



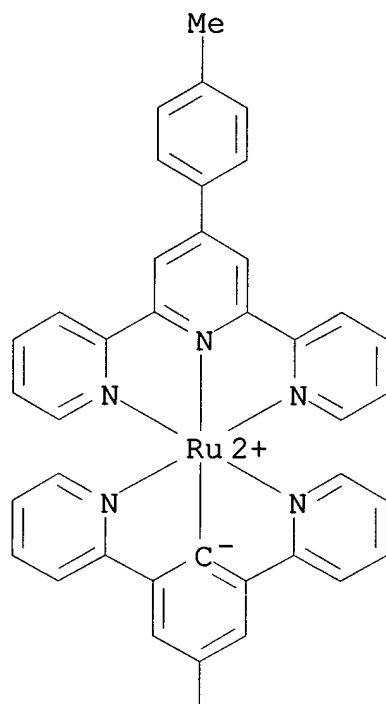
RN 155643-21-3 CAPLUS

CN Osmium(2+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine- κ N1, κ N1', κ N1''] [[4'-(4-methylphenyl)-2,2':6',2''-terpyridine- κ N1, κ N1', κ N1'']ruthenium] [μ -[3,3',5,5'-tetra(2-pyridinyl- κ N)[1,1'-biphenyl]-4,4'-diyl- κ C4: κ C4']] - (9CI) (CA INDEX NAME)

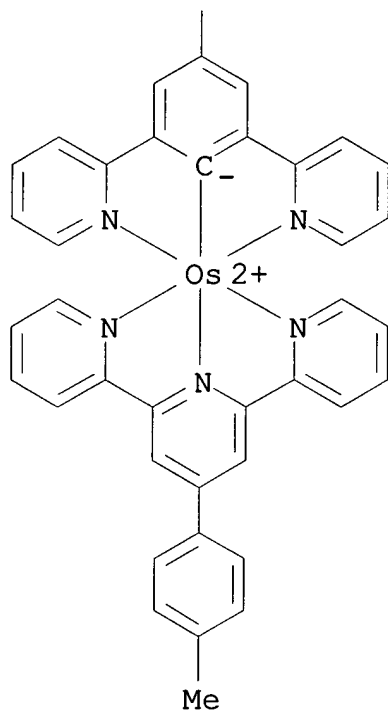
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REM 04A30

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RN 155643-44-0 CAPLUS
 CN Ruthenium(1+), [4'-(4-methylphenyl)-2,2':6',2''-terpyridine-
 N,N',N''] (3,3',5,5'-tetra-2-pyridinyl[1,1'-biphenyl]-4-yl-
 C4,N3,N5)-, (OC-6-42)-, hexafluorophosphate(1-) (9CI) (CA INDEX
 NAME)

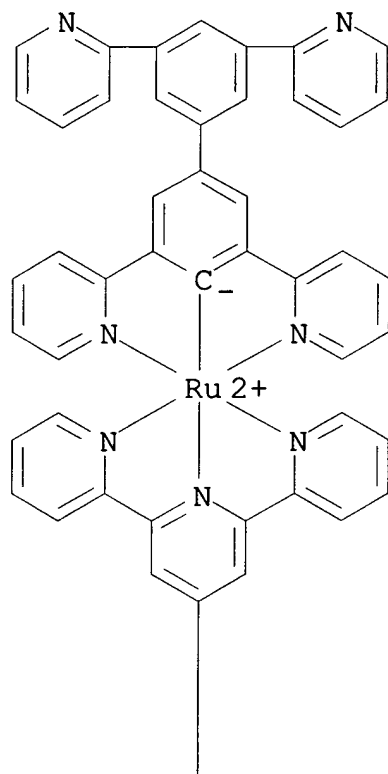
CM 1

CRN 155643-43-9
 CMF C54 H38 N7 Ru
 CCI CCS

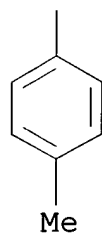
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REM 04A30

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CM 2

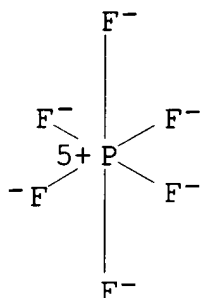
CRN 16919-18-9

CMF F6 P

<SHRESTHA>

REM 04A30

CCI CCS



RN 155643-45-1 CAPLUS

CN Osmium(2+), [4'-(4-methylphenyl)-2-2':6',2''-terpyridine-N,N',N''] [[4'-(4-methylphenyl)-2,2':6',2''-terpyridine-N,N',N''] ruthenium] [μ -(3,3',5,5'-tetra-2-pyridinyl[1,1'-biphenyl]-4,4'-diyl-C4,N3,N5:C4',N3',N5')] -, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 155643-21-3

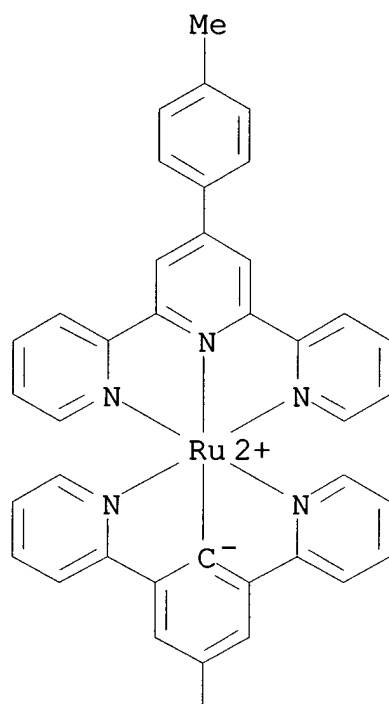
CMF C76 H54 N10 Os Ru

CCI CCS

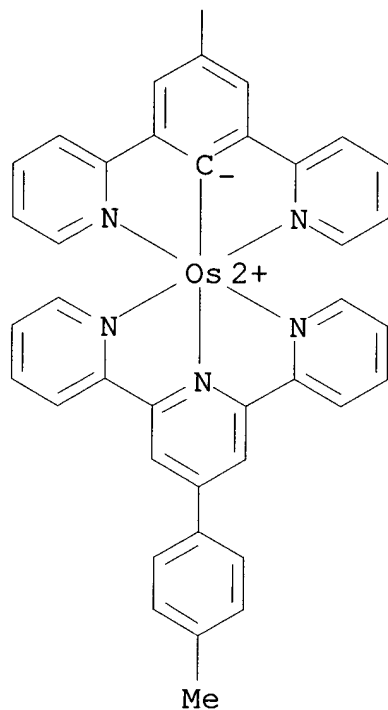
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REM 04A30

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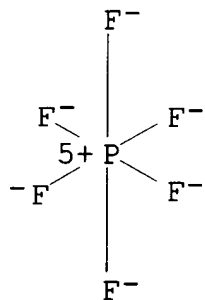


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



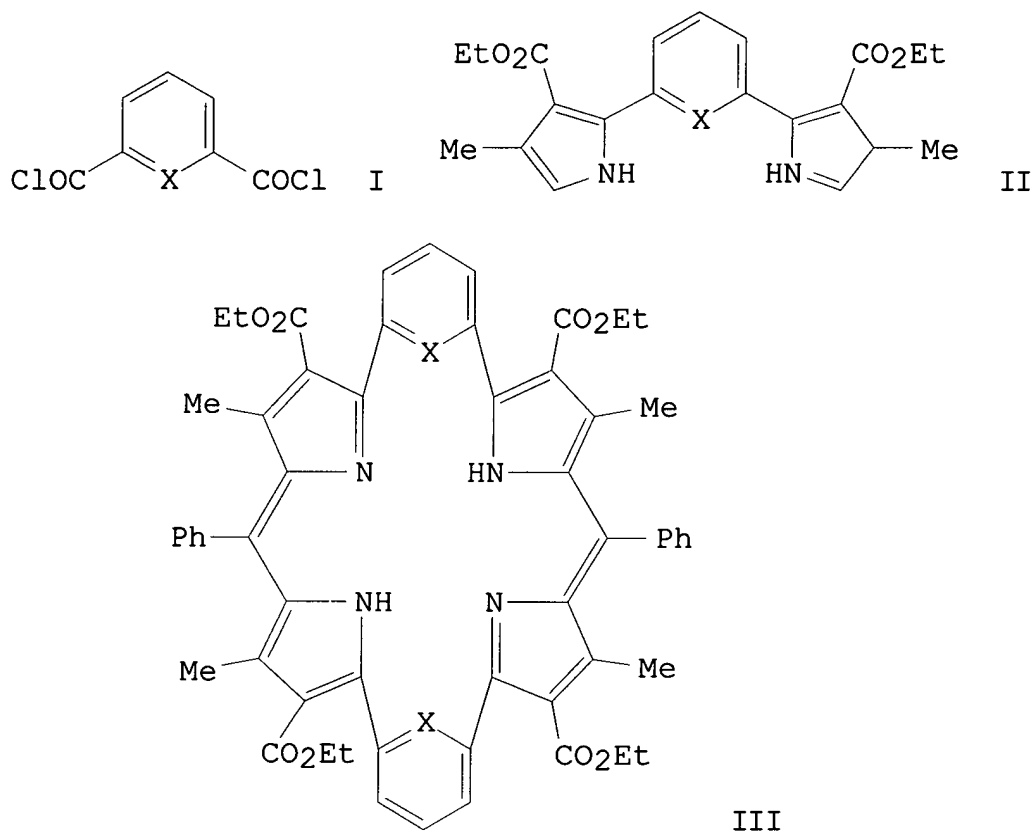
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related

<SHRESTHA>

REM 04A30

Properties)
ST **luminescence** osmium ruthenium mononuclear dinuclear
complex; UV visible osmium ruthenium mononuclear dinuclear
IT **Luminescence**
Ultraviolet and visible spectra
(of osmium ruthenium mononuclear dinuclear complexes)
IT **151834-29-6 151864-13-0 155643-21-3**
155643-44-0 155643-45-1
(**luminescence** and absorption spectra of)

L13 ANSWER 14 OF 14 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1991:228659 CAPLUS
DOCUMENT NUMBER: 114:228659
TITLE: A facile synthesis of new tetrapyrrole
macrocyclic derivatives. Formation of
bimetallic transition metal complexes
AUTHOR(S): Corriu, Robert J. P.; Geng, Bolin; Moreau,
Joel J. E.; Vernhet, Claude
CORPORATE SOURCE: Dep. Chim. Org. Fine, Univ. Montpellier II,
Sci. Tech. Languedoc, Montpellier, 34095, Fr.
SOURCE: Journal of the Chemical Society, Chemical
Communications (1991), (4), 211-13
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 114:228659
GI



AB The reaction of Me(hexynyl)CuLi with (Me₃Si)₂NCH₂C.tplbond.CCO₂Et followed by treatment with a diacid dichloride, e.g. I (X = CH, N), gave a facile access to m-dipyrrolylbenzene or 2,6-dipyrrolylpyridine derivs. II which were cyclized to tetrapyrrolic macrocycles III. Further reactions with Pd or Ni complexes **led** to bimetallic complexes.

IT **133650-88-1P**

(preparation of)

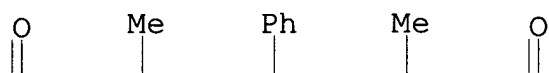
RN 133650-88-1 CAPLUS

CN Palladium, bis(2,4-pentanedionato-O,O') [μ-[tetraethyl 4,8,18,22-tetramethyl-6,20-diphenyl-30,31,33,34-tetraazaheptacyclo[23.3.1.12,5.17,10.111,15.116,19.121,24]tetratriacenta-1(29),2,4,6,8,10(33),11,13,15(32),16,18,20,22,24(30),25,27-hexadecaene-3,9,17,13-tetracarboxylato(2-)-N30,N31:N33,N34]]di-(9CI) (CA INDEX NAME)

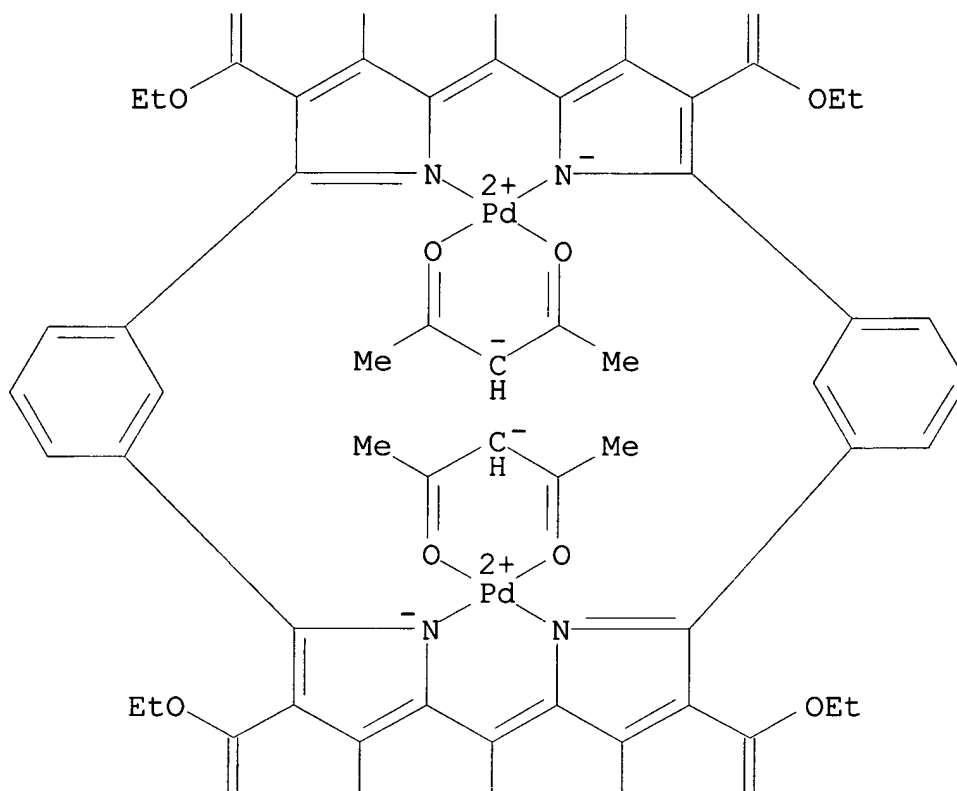
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REM 04A30

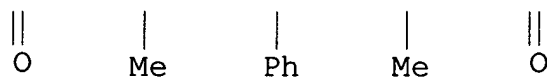
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CC 27-10 (Heterocyclic Compounds (One Hetero Atom))
 IT **133650-88-1P** 133706-08-8P 133706-09-9P 133895-55-3P
 (preparation of)

<SHRESTHA>

REM 04A30